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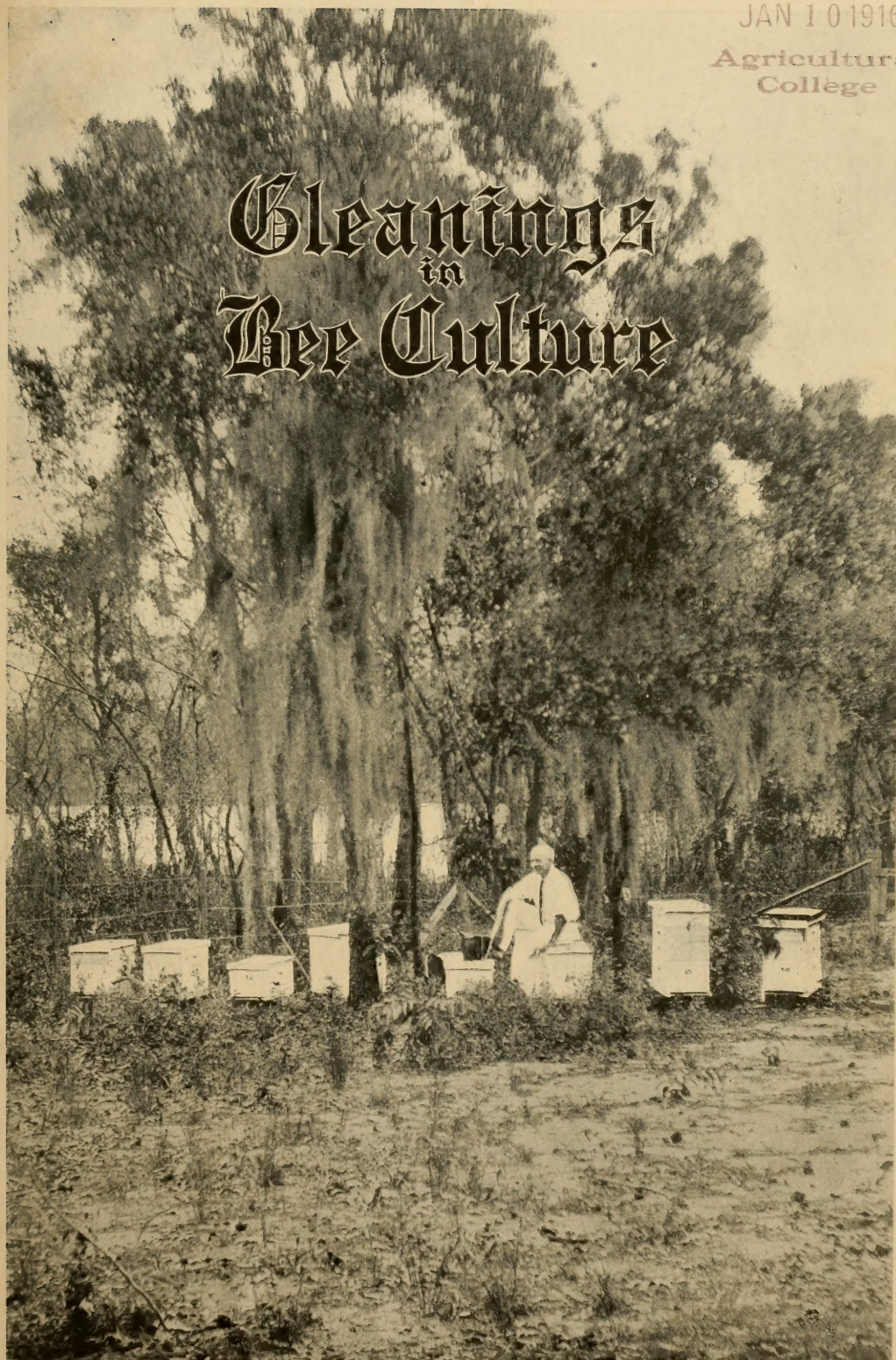
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Agricultural
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Cleanings in Bee Culture

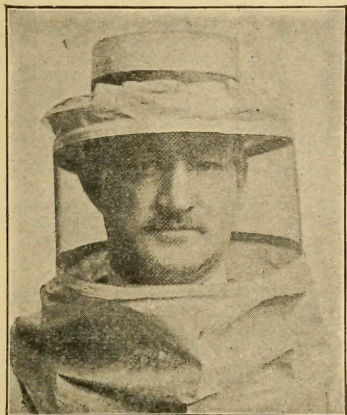


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Gleanings in Bee Culture, Medina, Ohio



THE IDEAL BEE-VEIL

Oftentimes when out in the yard working with the bees one stoops over to pick out a frame, and, as usual, bees keep buzzing around his head, watching for a chance to sting. The cloth veil which is often used sticks to the face when one bends over, and gives the bees an opportunity to sting. The IDEAL BEE-VEIL is constructed of cloth of wire, there being a cord at the top of the veil used to pull the cloth around the crown of the hat. The lower part also has a cord which fastens around the waist. The wire on the IDEAL veil does not strike the face, and prevents the bees from stinging. It can be readily seen that a veil of this kind has the cloth veil far outdistanced for comfort and utility. Sparks from the smoker do not burn holes in the IDEALS as in the netting veil.

The veil is manufactured by us, and is recognized by the best and largest beekeepers as the most practical veil on the market.

Red Catalog, postpaid. "Simplified Beekeeping," postpaid.
Dealers Everywhere.

W. T. Falconer Mfg. Co. . . . Falconer, N. Y.

Where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and capping white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

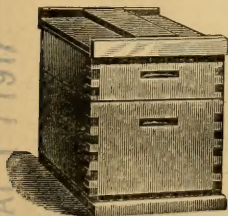
This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

Early-order Discounts will
Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri



STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH

1. *Extra Fancy*.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

CHICAGO.—The market is simply stagnant on all kinds of honey. Prices are without material change. Beeswax is selling at 28 to 30 cts. per lb.

Chicago, Jan. 4.

R. A. BURNETT & Co.

ST. LOUIS.—Our honey market lately has been very dull and slow, but stocks quite ample for small demand. We are now quoting white comb honey in 24 sections at \$3.25 to \$3.50; amber from \$2.50 to \$3.00; dark and inferior, less; extracted honey in 60-lb. cans, from 5 to 8½; in barrels, from 5 to 6, according to quality. Beeswax, 28 for pure; impure and inferior, less.

St. Louis, Jan 6. R. HARTMANN PRODUCE CO.

ZANESVILLE.—The demand for honey is about normal for the season. Prices remain as per previous quotations. Choice to fancy grades sell in single-case lots at \$4.00 to \$4.25; lighter weight and inferior grades correspondingly lower, with usual discount to the jobbing trade. Best grades of extracted are selling at 9 to 11, according to quantity. Twenty-eight cents cash, thirty in trade are ruling prices for wax as received first-hand from producers.

Zanesville, Jan. 6.

E. W. PEIRCE.

INDIANAPOLIS.—The demand for honey, both comb and extracted, has not been very brisk since our last report, but this we believe is due mostly to the holiday season. We are being offered honey by many producers, and they seem very anxious to sell. No. 1 choice comb is selling at \$4.00 per case; No. 2 at \$3.50 per case. Extracted of fine quality is bringing 9 to 11. We are paying 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, Jan. 5.

WALTER S. POWDER.

KANSAS CITY.—The supply of both comb and extracted honey is good, but the demand is only fair. We think the mild weather has something to do with the light demand. We quote No. 1 white comb honey, 24-section cases, \$3.15 to \$3.25 per case; No. 2 ditto, \$2.75 to \$3.00; No. 1 amber ditto, \$3.00 to \$3.10; No. 2 ditto, \$2.50 to \$3.00; white extracted, per pound, 7½ to 8; amber ditto, 5½ to 7; No. 1 beeswax, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Jan. 5.

We are in the Market to buy both comb and extracted honey. Write us what you have to offer, naming your best prices delivered. Every time an interesting price is named us, we buy, and remit the day shipment arrives.

Ship Us Your Old Comb We render it into wax, and pay market price.

The Fred W. Muth Co., 204 Walnut Street, Cincinnati, Ohio
"The Busy Bee Men"

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To order your supplies, and thus have every thing in readiness for the spring besides saving 3 per cent

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

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C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

The Prospect for 1916 is Very Good

It would be wise to be one of the beekeepers who are now ordering supplies for another season; besides, there is a discount for January of 3 per cent and February of 2 per cent. Send us a list of goods required and we shall be glad to quote you prices if you have no catalog. Catalog will be sent only on request. Our stock for season of 1916 is now here, and we can fill orders pretty promptly. We carry a full line here at Syracuse; and by ordering from here you will save time and freight. Goods will arrive in better condition on short hauls. Better make out a list before you forget it.

F. A. Salisbury, Syracuse, N. Y.

1631 West Genesee Street

Gleanings in Bee Culture

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QUEENS OF QUALITY

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By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as a breeder. We will tell you. They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review*, and one of those famous queens. These queens are well worth two dollars each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of *GLEANINGS* a subscriber to the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address with remittance

THE BEEKEEPERS' REVIEW, Northstar, Michigan.

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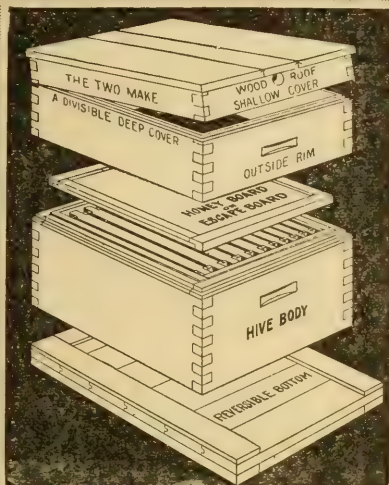
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We sell Root's Goods in Michigan. Order from Root catalog, or we will quote on request. January cash discount, 3 per cent; February, 2 per cent. Beeswax wanted.

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If you are interested, and it is your intention to order your supplies before goods are really needed, just try placing a trial order here. We are quite sure you will continue with us year after year. Some, of course, never buy supplies till after they are needed. But the men who are most successful are preparing *right now* for next season.

We allow you 30 cents a pound in trade for good average beeswax delivered here.

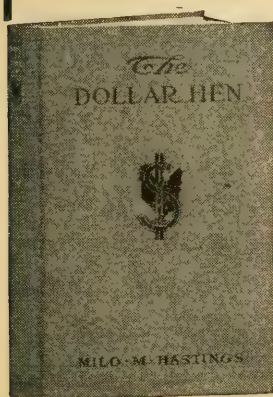
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873 Massachusetts Avenue

The Dollar Hen

My opinion is that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up to date, and still fewer that pitch right into the superstitions and humbugs scattered thru all our poultry books and journals.—A. I. Root.



This book will be clubbed with GLEANINGS for one year at \$1.35; or, if you have already subscribed a year or more in advance you can have the book for 60 cents.

GLEANINGS
IN
BEE
CULTURE,
Medina,
Ohio

"Next Door to Everything"

reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business, distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

January cash orders are subject to a special discount of 3 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St.

Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

TERRY IS DEAD



BUT the great work he wrought in pointing out Nature's way to health will go on. So broken in health at 40 years of age that the doctors gave him up to die, he began all over again with fine courage to build himself up on a plain common-sense basis.

He tells about it in his book, "How to Keep Well and Live Long." He did not live to be 100—but he did create a wonderful book. It is clear, simple, and straightforward. Thousands of copies have been sold. They are making people healthier and happier who sensibly follow his teachings. Mr. A. I. Root heartily endorses Mr. Terry's writings on health subjects.

"How to Keep Well and Live Long" is a substantial book, illustrated, 6 x 9 inches, 222 pages, and bound in cloth.

Price: \$1.00, postpaid; or clubbed with Gleanings in Bee Culture for one year at \$1.50.

Canadian postage on Gleanings, 30 cts., foreign 60 cts. extra

Gleanings in Bee Culture
Medina, Ohio

Many have stated that the 1915 Lewis Catalog was by far the best bee supply catalog ever issued.

The New Lewis 1916 Catalog is still better than the 1915 edition particularly in the illustrations, most of which will be found to be entirely new and of the finest work the engraver is able to produce in this line. As in previous editions, all descriptions and lists of prices are comprehensive and very plain.

This new Lewis 1916 Catalog is now out. If you have not been receiving the Lewis Catalog annually send in your name at once and we will see that you get your copy promptly.

G. B. Lewis Company . . Manufacturers of
Lewis Beeware . . . Watertown, Wisconsin

DADANT'S FOUNDATION

Early-order Discounts on Dadant's FOUNDATION

Send us a list of the bee-supplies and foundation you will need for 1916, and we will gladly quote you our best prices. It will pay you to buy early.

BEESWAX.—We buy beeswax the year round and pay highest cash and trade prices. Light yellow wax from cappings is especially wanted. Your **BEESWAX** worked into foundation at moderate rates.

NOTE Old combs, cappings, and slumgum rendered on shares. Send for our terms. We will get all the wax and save you a "mussy" job.

DADANT & SONS
HAMILTON, ILLINOIS

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JANUARY 1, 1916

NO. 1

EDITORIAL

OUR apologies are due to our readers for allowing the Dec. 15th issue to be a little late. The only explanation we have to offer is the extra number of pages and the very complete index, comprising 3737 references. This issue is likewise delayed for the same reason. If our readers will use this index as they should we feel sure they will pardon the delay.

In the Shade of the Spanish Moss

OUR cover picture in this issue shows a part of the apiary of Harry Hewitt, Apopka, Florida. The bees in Lakeside apiary enjoyed a good flow from orange blossom, but since that time the proprietor has had to feed forty pounds per colony to keep the colonies alive. He hoped to get enough from partridge pea to carry them through the winter.

Forest fires in April took all the palmetto, gallberry, and red-bay pasture.

Prominent Wisconsin Beekeeper Dies

IN recording the deaths of prominent beekeepers we have seldom found it necessary to make mention of a death so sudden as in this present instance. On Thursday, Nov. 25, Mr. H. C. Ahlers, who had just returned from a hunting-trip in the northern part of the state, had a severe hemorrhage, from which he did not rally, his death taking place at his home in West Bend the following day.

Mr. Ahlers was an extensive beekeeper, having four or five out-apiaries, and he made a specialty of selling honey direct to the consumer. He also sold bees and queens from his best honey-producing strains. It was only in November that he advertised for a helper in his beeyards for the coming year.

GLEANINGS extends sympathy to the bereaved wife and daughter.

Honey Post Cards.

AT the New York State meeting a year ago a publicity committee was appointed to consider the ways and means for improving the honey market, which committee was held over this year. Some time ago the State Association got up a writing-tablet with illustrations, information, etc., regarding the honeybee. This publicity committee is now contemplating putting out post cards with snappy designs and pictures, tending to call attention to honey and educate the public concerning it.

In order to secure designs, prizes are being offered for sketches—\$15.00 for the first prize, \$10.00 for the second, and several more prizes of \$5.00 each. Correspondence is invited. Address F. Greiner, Naples, N. Y.

The Quebec Beekeepers' Association

WE have just received a full manuscript copy of the secretary's report of the latest meeting of this society, held in Montreal Nov. 10 and 11. This report is all in the French language, as were also the discussions themselves. Lack of space alone prevents a full translation and presentation of the report, altho much of it relates to the mere routine work of the society. As a whole, however, it shows great activity on the part of our beekeeping friends in that far-north country. There were present a great many officials connected with the provincial government, and, in fact, from most of the higher educational walks in life, which is certainly an encouraging feature.

We note that Dr. Pilon gave an interesting talk on the advantage of bees to agriculturists in general, saying he was convinced of the necessity of bees for pollination of fruit.

As a copy of this report can be had, probably, for a nominal sum, we would advise all our readers who understand

French to send to the secretary, Oscar Comire, Abenakis Springs, Quebec, and get a copy.

That Record-breaking Car of Honey

ON page 832 of our issue for Oct. 15 we mentioned the fact that Mr. William Lossing, of Phoenix, Arizona, was loading the biggest car of honey that was ever recorded. He crowded into that car 646 cases, or a total of 87,589 lbs. As the average car does not go much above 40,000 lbs., we raised the question whether our correspondent was not overdoing it by piling the cases, as we supposed, clear up to the ceiling and thus putting an enormous pressure on the cases below. He comes back at us as follows:

Mr. Editor:—Some time ago I wrote you about a large car of honey I was loading—so big a car that you thought I was overdoing it. Well, that part is quite natural for easterners who are not accustomed to western ways, especially in Salt River Valley, where milk and honey flow in large quantities.

As per your request I wish to make another report on the big car which you imagined was filled to the top. Why, it was only three tiers deep the full length of car, and four tiers at either end. Each single tier was ten cases wide. When this car arrived at its destination it was reported that they never heard of such a big car, and that it got thru all right. Well, the next four cars were loaded as follows: 644 cases, 633 cases, 444 cases, and 457 cases. I will load two cars this week with over 500 cases in each. While I would not advise loading to the roof of a car as you feared, I deem it perfectly safe to load at least four tiers high if so desired, as, when cases are properly loaded six or seven tiers high, they cannot break down.

Our usual way of loading is lengthwise, cases packed close both ends and sidewise. I have my first loss yet to come when loaded as above, and I have been shipping for some nine years. So far this year I have produced 4100 cases, which is not over half of what is produced in Maricopa County, as we have between 22,000 and 23,000 colonies in this county, and no foul brood.

Phoenix, Ariz., Nov. 22.

WM. LOSSING.

We take it all back, friend Lossing. You Westerners often do things on a big scale. The fact that the cars were large in proportion to the load they were carrying shows that you were not taking the risk we had supposed.

The Amount of Stores Necessary for Good Wintering Outdoors

ELSEWHERE in this issue, page 9, Mr. J. L. Byer, commenting on our statement that less stores are needed in the North than in the South, says:

"As we are further north than Ohio, on the same basis of reckoning we should require even less honey than they do in Ohio. But I wonder where the producer here in Ontario lives who would trust his colonies

outdoors to go into winter quarters with stores aggregating but 20 pounds, combs included."

It would hardly seem to us that bees in Ontario would require less stores where they have a longer period of confinement than in Ohio. Indeed, the very reverse would be true. In our locality (and that represents most northern localities south of the Great Lakes) 20 lbs. of good sealed stores is enough to carry the bees thru from November till the middle of April, or even to the beginning of May. Our bees fly as late as December 1, and as early as the first of March. By April 1 or 15 they gather some natural pollen and nectar from the soft maple. From April 15 to May 10 they gather considerable honey from dandelion and fruit-bloom. Mr. Byer says that in his north yard he has heavy snowfalls as a rule, and this yard is never visited by him from late fall till early spring. Reports from other Ontario beekeepers show that bees may be confined five months without a flight. Such continuous cold and severely cold weather would cause a larger consumption of stores than a milder cold. When it is so cold, indeed, that bees have to go into a state of activity, as Dr. Phillips has described in Bulletin 695, they begin exercising, and activity means consumption of stores. We proved that, in our observation hive, the colder the weather, the more the bees consumed.

But there is another very important point overlooked by our correspondent. Bees in the South consume more stores because they will rear brood more or less *all winter*, while those in the North will do so under normal conditions only toward spring. On this point there would not be much difference between Ohio and Ontario.

Taking it all in all, the inference of Mr. Byer, that bees in Ontario would consume less stores than here in Ohio, is hardly warranted. The facts are, and Dr. Phillips' bulletin, from a theoretical point of view, proves it, that, in a mild cold, bees will consume less stores than where it is colder or warmer. When the temperature outside of the cluster is 57 F., the bees actually consume less than when it is higher or lower. See Farmers' Bulletin 695 reviewed on page 876, Nov. 1st issue. Bees in Ohio consume less stores because the winter temperature is more favorable, and the winter is shorter, so that they can gather nectar and pollen a month or six weeks earlier than Mr. Byer's bees. Thus we have a distinct advantage in smaller consumption.

Mr. Byer says he himself would require from 40 to 50 lbs. of stores, and Mr. Sib-

bald uses 70 lbs. The former, at least, says he prefers honey to syrup. Good extracted honey in Ontario sells at about 10 cts., and according to that it costs between four and seven dollars for stores to carry Ontario colonies thru winter. This does not include the cost of the investment, winter cases, and putting bees into winter quarters and the labor of unpacking. Does not Mr. Byer make some mistake? The cost of between five and eight dollars for winter stores would seem to be an excessive burden on the business. No wonder some of the beekeepers of Ontario are thinking that it would be cheaper to brimstone in the fall, and buy bees in pound packages from the southern states. It certainly would, at this rate.

Mr. Byer by inference made a statement (see p. 905, Nov. 1) that too much packing during winter was too much of a good thing. Is it not true that he and some of his fellow beekeepers would save stores by using more packing instead of less?

Do Bees Perish During Winter when their Hives are Completely Covered with Snow for Long Periods of Time?

IN the same department Mr. Byer takes issue with our statement made to a correspondent, "When hives are completely covered with snow for several months it is enough to kill any bees." He said he used to think that way; but he has changed his mind. Some of his bees at the north yard he declares remain covered with snow for three months or more, and yet he has had perfect wintering. At this yard he used upward absorbents—no sealed cover.

Mr. Byer has two conditions that contribute to good wintering in his yard—namely (1), a cold atmosphere during which the snow does not melt as it does in Ohio, run in at the entrance, and then freeze; and (2) upward ventilation. We have a great many thaws in our climate. The snow becomes dense and soggy, and sometimes the ice hermetically seals the entrances. We use on the hives thin boards that are not sealed down. As others in our climate have similar conditions it would be a little dangerous to allow the statement to go out that bees in hives completely covered with snow are always safe. That depends on the climate and conditions. We have had many reports showing where colonies buried under snow died because either the entrances were sealed with ice or banked up with snow that had partially melted and frozen.

We have been in Canada during mid-

winter, and found the atmosphere is decidedly colder and dryer than south of the Great Lakes—at least south of Lake Erie. The snow is light and fluffy in northern Ontario, and such snow can cover hives to the depth of a foot or more, providing the the climate is dry and cold.

A Look into 1916

THIS is not an ad. The advertisement appears on the back inside cover page; but by these paragraphs we hope to make a few further suggestions from an editorial point of view regarding our special numbers for 1916. Curiously coincident with the editors of a number of other magazines, we decided this year to give the main attention to matters commercial rather than professional. We are going to talk a lot about selling.

The first July issue is the special on advertising. We are gratified to announce that we have secured the promise of an article or articles from a man who is possibly the best authority on advertising honey in this country. He is the head of an advertising agency distinguished by unique achievement and unusual growth. Altho he has had charge of the only national advertising campaign ever carried out for honey, probably few beekeepers know him, simply because his attention has been toward selling and not producing. We allude to Mr. W. C. D'Arcy.

We shall also present articles on exhibits at fairs and food shows, newspaper and direct by mail advertising, and other means of publicity. We hope for this issue, as well as all the others, that honey-producers who have had experience with advertising in any form will state it for the benefit of their fellow beekeepers.

The marketing-honey number, the first August issue, will deal with matters of a similar nature, with the emphasis upon selling. From a dollars-and-cents point of view we hope to make this the most practical in 1916. We look for articles on local sales, whether by canvassers or thru stores, and distribution by jobbers. We expect to have some straight talk on co-operation as well.

The March 1 buildings number is sure to interest everybody. Send in the plan of your extracting-house or workshop, with a description accompanied by specifications and photographs, if possible. Labor-saving arrangements of equipment will be especially interesting.

The first May number is the special on out-apiaries. Large-scale beekeeping has

been featured before; but there is always so much new and valuable information coming up all the time that there are plenty of new things to be said about out-apiaries. If you have one, tell us so. Details on which we wish contributions are specified in a paragraph in advertisement elsewhere.

It may be that wax is a side line with you, very much aside. And yet there are profits in beeswax, especially for the man whose freights on comb and extracted honey are high. In fact, we have had several inquiries of late about whether it would be possible to run bees for wax primarily, and make honey a by-product. What do you think? And how would you go about it? This will be the meat of the June 1st number, the special on wax production.

Just as we have done in former years, we chose these special topics from suggestions which our readers have obligingly sent us during the past year. While a considerable number of articles are already on hand, there is plenty of room for more good ones.

Government Data on Wintering in the United States; Causes of Winter Losses.

Bulletin No. 325, of the United States Department of Agriculture, among other things, concerns itself with wintering. The data were secured from 650 honey-producers in 42 states, covering 80,000 colonies of bees. These reports came mainly from the best honey-producers; and the presumption is that the averages show up better than if returns were taken from beekeepers from all over the United States. Some interesting data have been secured; and among them, briefly summarized, are the following:

The average quantity of honey for stores reported in the hives at the beginning of winter is in excess of what is usually considered to be necessary to carry a colony from one honey-flow to another. As every up-to-date honey-producer will be on the safe side, he will put in more than enough. Those who report belong to this class. The figures show 32 lbs. per colony for the United States when 25 lbs. are usually considered enough.

We estimate that bees in the South require more stores than those in the North, for the simple reason that brood-rearing in some of the more southern places may go on every month in the year. But a study of the tables shows that there is but very little variation between the food supply, either north or south. This may be and

probably is accounted for by the fact that bees in the North are confined in their hives for a long period of time without flight. This causes more or less bowel disturbance, and toward spring a large consumption of stores, thus aggravating the trouble until dysentery pulls the colony down.

As would naturally be expected, the reports show that winter protection varies according to the latitude north or south.

Winter losses range from 15 to 20 per cent in the more northerly states, and from 5 to 15 in the more southern. The cause of winter losses is usually thought to be missing or worn-out queens. A considerable percentage of the reports failed to state the cause of death, and it is believed that the heaviest mortality is due to starvation.

In the line of honey-yields, the July 1st honey report indicates that the honey season had been late from one to three weeks over most of the country, due to the cold and generally wet weather. The average of surplus honey up to July 1, 1915, was estimated at 18.3 lbs. as against 20.7 for the preceding year. Taking the country as a whole, this amount, however, is only about 50 per cent of the total crop for the entire season, estimated up to Sept. 1. On that basis the average would be twice as large, or 36 and 40 lbs. respectively. The yield from the small apiaries, especially of the backlotters and of the up-to-date farmers would be higher than that from the large apiaries.

The northern states, with the exception of Illinois, Wisconsin, and Nebraska, show that a high proportion (from a half to two-thirds) of their production is in the form of comb honey, while in the South and West generally it is only from a third to one-half of all.

Reports show that 60 per cent of the honey removed from the hives is consumed locally. However, more than half is shipped out of Vermont, New York, Florida, Kentucky, Louisiana, Texas, Wyoming, Colorado, New Mexico, Arizona, Utah, Idaho, and California.

California is estimated to furnish about a fourth, and Texas one-eighth of practically all the extracted and comb honey produced in the United States. If the figures from all the producers could be secured we believe that the two states mentioned are credited full high.

Copies of the bulletin above referred to can be obtained of the Superintendent of Documents, Washington, D. C., for 5 cents.

An editorial in the second January issue will discuss data from this bulletin on honey imports and exports.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



VON MORALEC, a French artilleryman, made the first drone-trap, according to *Deutsche Bienenzucht*, 172.

GRACE ALLEN, I like you—first rate—but I won't like your "favorite apiarian attitude," p. 968. True, it's as good as sitting on a "wiggly hive-cover," but why not take a decent seat?

J. E. CRANE advises, p. 986, that in a case of European foul brood the colony have a cessation of egg-laying for two or three weeks. Will not ten days do, leaving the colony stronger?

BEEN "rasslin'" with grip for nearly a month, and cough hardly any now. Thankful it didn't come two months later, for I want to get to that convention at Chicago, Feb. 22. You goin'? [Expect to.—ED.]

F. J. LEE, p. 997, the editor has sized the thing up about right as to light in the cellar. My bees in cellar, having air the same as outdoors, will stand full light for weeks; but later on light is bad, and fastening in hives would be disastrous.

Now is a good time to ask your grocer to save you some cork-chips that come in kegs of grapes. Then to make the finest drinking-place for your bees, all you have to do next spring is to put water in a tub, pail, or half-barrel, and throw the cork upon it.

A. I. ROOT is asked, p. 1001, to preach sunshine for the babies. Sunshine outdoors is all right, but not in the house. Fashion dictates that the window-shade must be pulled down to just such a height, and a baby more or less is not to be considered when it gets in the way of fashion.

DR. NELSON has taken 280 pages to follow a young bee through its life in the egg. What an achievement it would be if it were as carefully followed through all the rest of its life, with all its goings, comings, and doings! Dr. Nelson has laid a grand foundation.

I SAY "amen" to A. I. Root's prayer, p. 911, that the president who comes after Wilson may be a praying man. But I wouldn't mind if the present incumbent would stay on the job for another four years, if he'd only agree to tackle the liquor problem with all his might.

W. P. ROOT, the man upon whom I depend to keep my punctuation straight in GLEANINGS, in his excellent summing-up of Bible mention of honey, p. 974, thinks

Jonathan ate a large quantity of honey. Jonathan testified, "I did certainly taste a little honey with the end of the rod that was in my hand." The mention of Christ's eating honey, Luke 24:42, does not appear in the American revision.

YES, Mr. Editor, I note that the other fellow of the floury name agrees with you that piping and quacking are the same, p. 993. I note also that both you and he avoid explaining how it is that notes of such unequal length *out* of the cell become of the same length *in* the cell. [So far as we are concerned, we did not know that we were "avoiding" any explanation. Perhaps we do not get your point.—ED.]

DOUBLE CAPPING of sections (that is, a fresh layer of honey built over that already capped) is reported in the *British Bee Journal*, 413. I never had a case of that kind with sections, but have had it a good many times on brood-combs. The curious thing about it is that the bees don't seem to know enough to open the bottom capping; and unless the beekeeper uncaps it the bees may starve before they find the honey under it.

WESLEY FOSTER says of European foul brood, p. 972, "It has been my observation that transferring and requeening produces results while caging the queen has not." In this locality, in mild cases (I'm not sure about severe cases) caging produces just as good results as transferring, and leaves the colony stronger. [Is it not true that European foul brood that has run for a certain length of time loses its original virulence? If that is the case, would it not explain the difference between the experience of Wesley Foster and yourself?—ED.]

MRS. ALLEN wants to know how many pounds of syrup will replace a given shortage of sealed honey, p. 969. A syrup of 5 pounds sugar and 2 pounds of water is about equivalent to 7 pounds of honey; so for every pound of honey lacking, feed $5/7$ of a pound of sugar, no matter how much water is added. [Is it not possible that Mrs. Allen has raised the question whether a pound of thick syrup is equal to a pound of honey of the same density? Was it not yourself who made the statement something over a year ago that, pound for pound, honey will go further than syrup? In your statement above you almost imply that, pound for pound, they are one and the same. How about it?—ED.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



But please, Mr. Editor, after my last paragraph, page 969, Dec. 1, you say that twenty pounds of sealed stores is advisable for northern wintering, and twenty-five or thirty for southern, and that is not what I was trying to elicit, but, rather, this: How many pounds of *syrup* (two measures of sugar to one of water) are required to make a certain number of pounds of *sealed stores*? If you found a hive lacking ten pounds of stores, would ten pounds of syrup do the work? In other words, will a pound of syrup make a pound of honey for wintering? (Why didn't I put it that way in the first place) Our judgment, based on nothing in particular, said no. To hives lacking ten pounds, we fed about fifteen pounds of this two-to-one syrup, on a vague "better-be-safe-than-sorry" proposition; but suppose one wanted to be accurate, how many pounds should he feed? [See answer to a Straw of Dr. Miller's in this issue. If in the fall a colony were lacking sufficient stores to carry them thru we would not hesitate to make up the deficiency by feeding. While a pound of sealed sugar syrup might not equal a pound of honey, it may be a better feed if the honey is of a poor quality. It is probable that a pound of good table honey like clover, basswood, and the like, will go further than a pound of sealed sugar stores; because the former contains some food elements that the latter does not.—Ed.]

* * *

FOR BEGINNERS.

Have you ever happened to hear of anything called the ventriculus? or anything else called the proventriculus—which you would very naturally, and quite correctly, infer was in front of the ventriculus? Well, there are such things, and most fascinating they are to study about. The more common name of the ventriculus is stomach, and of

the proventriculus is stomach-mouth; and it makes a wonderful story—how the nectar passes through the worker bee's oesophagus, down into her tiny honey-stomach, from there to be either emptied out into cells or held as reserve for her own nutrition. If the latter, how deftly it slips down into the real stomach just any time it is needed, perhaps even when the bee is in full flight. And then the polite, delicate way that the real stomach presses its sensitive little mouth up, right through the honey-stomach, to eject some of this partially digested food, or chyle, to feed the larvæ, leaving the nectar and pollen in the honey-stomach daintily undisturbed. Why! it is as interesting as a new novel, and far more thrilling and

beautiful. And do you know where a bee's heart is? Do study about these things. Every minute detail is startlingly perfect and thoroly worth while to know about. Even if you don't think it practical enough to be necessary, do it for the delight of it and the zest of it and the charm.

* * *

On page 624, Aug.

1. Mr. Gates mentions the occasional change in the flora of a given locality and the appearance of the new honey

sources. Dr. J. S. Ward, Tennessee state inspector, says that somewhere up the Cumberland River the beekeepers report the appearance in the last year or two of a new generous-yielding honey-plant whose name they do not know. It is a late-summer and early-fall bloomer, and Dr. Ward plans to go up there when it opens this year, to help establish its identity.

* * *

Surely Major Shallard's tragic accident arouses the sympathy of beekeepers this whole country over; and how plucky his letters sound—not a whine in them! J. D. Bailey's experience in the disastrous Louisiana storm was bad too. Our best wishes to both these gentlemen, and the hope of a more fortunate year to come.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Another fine rain, December 4, came in time to save the filaree.

According to official reports there are now more than 15,000 colonies of bees in Imperial County.

There has not been a season for some years when the eucalyptus has shown such a profusion of bloom as it does this season, especially the bluegum (*Eucalyptus globulus*).

The supply of honey is becoming very limited in this part of the world, and prices are advancing a little. One buyer claims to be unable to find enough California honey to fill his orders. A recent sale of a 30-ton lot in Orange County at figures as high as 6 cents is a big improvement in prices offered heretofore. A part of this lot was carried over from 1914 on account of low prices. There is some credit due the beekeeper who owned it and stood for better prices, even if he did have to wait nearly a year and a half to win his point. A number of buyers have been scouring the country for honey, and in some sections, at least, have taken all they could get, at *their* prices. The market is sure to be cleared before another harvest.

Displayed on a large bill-board in this city is an advertisement of a corn syrup which is doubtless no better than the same kind of corn product that has been handed over counters for years. Hundreds of eyes have seen the word, the curiosity of many has been excited by this apparently new syrup, and will be satisfied only by the purchase of a trial order at least. One of the greatest ideas in advertising is to keep an article constantly before the public. If the colored cook that is paraded before the public in Cream of Wheat advertisements should disappear, the public would take it for granted that Cream of Wheat had ceased to be, and the sales would no doubt slump distressingly. If honey were paraded to the same extent in advertising, the sales would increase to an enormous extent. But where is the money to back such an extensive advertising campaign?

The mooted question of "Goldens" seems to have bobbed up again. Both the editor and Mr. Byer discuss it at some length in the Dec. 1st issue. My ideas have not

changed since I had my say in the Oct. 1st issue. I covered the ground pretty fully so far as my ideas were then concerned. Now comes Mr. Byer with the plea that they do not winter at all well, while Editor Root says, "and too many of them have been cross, very cross." Since my plea for the fair race in the Oct. 1st issue, I have received letters from as far north as the location of Mr. Byer, from men who assure me they will compare them with any bees of any kind, for any qualification.

I have bred extensively this season from a golden queen that was guaranteed in every respect and qualification. I have as yet no reason to question the guarantee; and as for crossness I can only say there has been no smoke used on this colony during the entire season, and not one sting has been suffered by any one. Last season I introduced both golden and three-banded, with no apparent difference in their qualities. I have never claimed the goldens were superior to the three-banded strain only in black brood (European foul brood) resistance; but I do claim there is no sound reason why there cannot be a strain the equal of any three-banded strain for other qualities. It is my opinion there are now several strains which have reached that point, and I have the assurance of several that they are superior in resistance to disease. As a matter of producing honey, the thorobred stock of any race have nothing on the common mixed race of mongrel breeds. Last season the best colony in my yard was the darkest in point of color.

If I were in a locality where there was no danger of "black brood" I would breed alone for quality, whether from a dark or a light race; but as it is, I cannot afford to take the risk. I believe the goldens are superior in resistance, and I expect to prove that the goldens are at least the equal of any race on earth. There are some strains of chickens which have been bred for show points so long that, as a commercial factor, they are very unprofitable. That has been the case in the past with the goldens; but the future will correct those mistakes. To a great extent it has been corrected; but the prejudice against them remains to be lived down. They must now pay the price of color. They should at least be given a fair and unprejudiced individual-strain test, for there is more than one strain of three-banders being unloaded on the public that have little merit to back their sales.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



THE HONEY MARKET.

If all the comb honey could be sorted in such a manner that the honey subject to early granulation could be marketed each year before Christmas time, and a good supply of the clear transparent non-candying comb honey held for the spring trade, the market would be more stable. The trouble is that there is always the fear of not enough comb honey being produced to go around, so the buyers load up early on high-priced honey, buying for the whole season. If the crop is larger than estimated by the buyers, there are quite a few ears of honey that have to stand the slump in prices late in the season. If these ears of honey could be held until spring, just as good prices could be secured as for the early honey, provided it is not subject to granulation.

The year 1915 has passed, and in beedom a few signs point to progress made. The use of honey is being extended, and the beekeepers are realizing that practical honey publicity lies largely with them.

The "Eat Honey" sticker has won its way into favor with hundreds and thousands of beekeepers.

The perfecting of methods for shipping bees from the South is doubtless one of the most important elements that will have a large influence on future beekeeping.

In the West, the honey industry is growing by leaps despite the ruinous prices of California honey. Beekeepers are getting better organized for business. Idaho has a new association, and efforts are being made to start one in California. Success to them!

The last earload of Colorado comb honey in the producers' hands that I know of has just been sold, and will be shipped to Kansas. Prices secured for this honey are lower than most honey brought, but are a fair average for the last few years. I learn that \$2.65 for fancy, \$2.40 for No. 1, and \$2.20 for No. 2 were secured. This honey was produced in western Colorado, where the freight rate is higher to the East than from Colorado common points.

VARIATIONS ALLOWED BY NET-WEIGHT LAWS.

In a letter from Mr. Ernest Ryant, of Connecticut, to Mr. E. R. Root, and forwarded to me, I find the following: "I think the grading of honey as related by Wesley Foster on page 884, Nov. 1, will sooner or later get him into trouble. The selling of such sections by the section would lay the seller liable to prosecution in this

state. No variation over $\frac{1}{2}$ ounce is allowed—that is, if a section is marked 12 ounces it must weigh at least $11\frac{1}{2}$ ounces and not over $12\frac{1}{2}$ ounces, and the case must average at least 12 ounces."

Here in the West we are stamping our honey with the minimum net weight, and doubtless we are erring in thinking that, if we stamp a section "net weight not less than ten ounces," it will be all right if it weighs twelve or thirteen. So far none of us have gotten into trouble, but it is better to find out the regulations of the various states before we do. If GLEANINGS could give us the laws of the various states on these points it would help. We ought to be able to put up our comb honey so it would sell in any market.

EXTRA PROTECTION NOT NEEDED IN COLORADO.

Dr. Phillips states that additional protection, other than that provided by single-walled hives, is beneficial for bees throughout the United States. The majority of beekeepers with whom I have talked regarding this, disagree for their locations. The double-walled hives have been tested over a series of years, and bees kept in them have not wintered as well as in single-walled hives. The winter case has not been well tested here in the West, to my knowledge. Our beekeepers have demonstrated that normal colonies wintered on their summer stands winter almost perfectly.

Granted that bees wintered in a case containing four or eight come thru in better shape (which I have found no one willing to grant unqualifiedly), the majority say it will not pay for labor or expense.

The only time I can see where additional protection could pay is when we have a month of zero or near zero weather. This does not happen oftener than once in three years. We do lose some colonies at these times that would be saved if given more protection. But I do not think it will pay to go to the expense when we consider that, if all our colonies were wintered, the increase from swarming would soon overstock our locations. Some are overstocked now.

One beekeeper, who owns 800 colonies, told me he counted on 25 per cent loss each year, and that gave him enough empty hives for increase, so new hives did not have to be bought. This beekeeper is located where the winters are severe.

We should like to see some plan worked out that will meet our conditions. The arid conditions are not the same as in the East.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Generally speaking, we had a nice open fall, but with few days when bees could fly. About Nov. 15 we had a day or two when bees could have had a flight if they wished, but very few were in the air. While it always gives us a feeling of satisfaction to see the bees have a thoro flight late in November or early in December, yet actual wintering results seem to be but little different whether they have this choice or not, provided the stores are of good quality and the hives are heavy.

This reminds me of seeing in the Dec. 1st issue of *GLEANINGS*, page 969, the statement that in Ohio the editor considers 20 pounds of sealed stores, including combs, as sufficient for wintering in the North, while 25 or 30 pounds would be necessary for the South. As we are further north than Ohio, on the same basis of reckoning we should require even less honey than they do in Ohio. But I wonder where the producer here in Ontario lives who would trust his colonies outdoors to go into winter quarters with stores aggregating but 20 pounds, combs included. The most of us will double that allowance, and then have nothing left over by the time the flow starts the following June. Mr. Sibbald makes his ten-frame Langstroth hives to weigh 70 pounds without the cover, and many others insist on nearly as much.

I am convinced that, for our climate, an allowance of but 20 pounds, combs and all, would often result in starved colonies early in spring; and in almost every case, even if bees managed to pull through till early spring on these limited stores, their death would not be delayed much later. If bees can be trusted to come out all right in Ohio on the amount stated, then that state certainly has us beaten a long way on the question of stores necessary to carry colonies successfully thru the winter.

"When hives are completely covered with snow for several months it is enough to kill any bees," page 964, Dec. 1. I used to think so; but in the light of experience for the past few years I am forced to change my mind on this question. At our north yard, often referred to, we have a heavy snowfall as a rule; and the more snow there is over the hives the better we are satisfied, and this yard is never visited by us from late fall till early spring.

The cases containing the bees drift right

over at times and remain covered some seasons for three months or more, and yet we have so far had perfect wintering. Once I was at this yard when all cases were out of sight, and I got a shovel and dug down to the entrances of a few of the cases, and I would find a large air-space around the entrances where the snow had been melted by the heat of the bees. Of course we use a quilt over the frames—wouldn't think of having a board under such conditions. About ten or twelve inches of packing over this quilt, and then between the top of packing we want a few inches of space for air to circulate between the packing and the cover of the case.

With a board over frames allowing little or no upward ventilation—a small entrance and then all hives covered over with snow for a long while—that's an entirely different proposition. We cannot visit this out-yard during the winter, so we have adopted the former plan; and as the storms blow here in York County it is with considerable satisfaction that we anticipate even worse blizzards up north and have no fears of the bees suffering. If in a locality where snow is abundant, try this plan and cease worrying, and at the same time save yourself a lot of work in shoveling snow away from entrances all winter. [See editorial.]

The writer has just returned from spending a week in New York, after being at Syracuse with the New York State Association convention. While I gleaned much that I hope will be of interest for the future, time forbids making more than a mere mention of my visit just at present. Assuredly the New York state fellows—at least those around Syracuse—"get there" in more than one way. From what I could learn, I doubt if there is any other section in the United States or Canada that is as heavily stocked with big beekeepers and bees as Onondaga Co.

I had the privilege and pleasure of enjoying the hospitality of Mr. House. Mr. Kinyon and myself were unable to leave friend House's on account of a regular blizzard all day in which about a foot of snow fell. While Mr. House had intended to take us on an auto trip to visit various beekeepers—Mr. Doolittle among the number—this pleasure had to be given up; but, after all, what a "talk fest" we had all that day long—Mr. House, Irving Kinyon, and yours truly!

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



PROLIFICNESS OR LONGEVITY.

"Which do you consider preferable—a queen having extra prolificness, or the queen whose workers have the greatest longevity? Is it possible to combine the two in one mother bee?"

I believe it possible that a queen may be prolific, and her bees long-lived too; but Dame Nature has some peculiar plans of her own, and, when left to herself, she generally takes away something when she adds a great advantage to anything. So we can rarely expect her to put length of days and many children in the same hand, even when she is dealing with her most favored offspring, the bees. But most queens are given to "sporting a little;" and in this, Nature seems more ready to acquiesce with the bees than with many other things unless it is with poultry.

My belief is that we can combine longevity and prolificness with less nicety of work and trouble than was expended on producing bees with a lengthened tongue; but if we can't, longevity is well worth the effort. Under similar conditions in the hive and colony nearly all the bees would bring in about the same amount of nectar. The important factor is, what will they make of it? In answering this question it is well to remember that the colony of bees which gathers the largest surplus during the honey-flow, and consumes the smallest amount of this surplus in maintaining the colony between or after the nectar flows, is the most profitable one, and therefore the one to breed from. But in order to set about breeding up bees to their highest standard of excellence understandingly, we must know what qualities in the bees stand *first* in the make-up of a honey-gatherer.

In order that we may better understand matters, allow me to give something of the past that first called my attention to the value of longevity in bees. During the middle '90's one of our most successful comb-honey producers desired to exchange queens; and as I was always on the lookout for any chance to improve the bees I already had, we did so. I gave this queen my best care and attention; but the best she would do at brood-rearing was to the amount of about six Langstroth frames full. I was disappointed, as many of my queens would give to the amount of eight and nine frames practically full of brood. So I marked the colony as one whose queen

should be replaced with one more prolific. My time for superseding queens is when the flow of white honey is near its close; but when I came to this colony I found that it had stored and completed more sections than had any of the colonies having queens giving eight and nine frames of brood. This led me to keep this queen for another season.

The next season proved a repetition of the year before; and while her bees did not seem to start out to work any earlier in the morning, or work later at night, nor seemed to be doing a "rushing" business at any time, they kept steadily at it, with the work in the sections slowly getting ahead of those which made a far greater showing as to working numbers at the entrance. This queen lived to be nearly five years old, and her colony held the "banner" as to completed sections for four years: and from close observation, longevity of the worker bees was the only reason I could ascribe to account for their superiority. The third and fourth year I used her as a breeder to a great extent.

If six frames of her brood gave a working force equal to eight frames of another queen, then that colony has saved the labor, the honey, and the pollen necessary to rear the two extra frames of brood. The labor part is not often thought about. The less brood that bees are rearing, the more slowly they are aging, other things being equal; and this saving tends to lengthen still further their time of service as the bees which "pile the honey in." And this is not all. Long-lived bees have less brood in proportion to keep warm and care for; and the small amount of brood for the size of the hive tends to discourage swarming as much as anything I know of.

Longer-lived bees do not slack off brood-rearing so quickly as the working force is large in proportion to the brood, and so a smaller nectar-flow suffices to keep the queen laying to her full capacity. This leaves the colony in better condition to begin storing a surplus from any smaller flow that may occur. What does all this amount to? To produce a given maximum force of workers, less honey is needed, less pollen, less labor, less heat; consequently a colony attains its full strength earlier in the season, and more surely, no matter what the weather conditions. It is better supplied with stores than others shorter lived, and the stores stay there at less loss of bees.

GENERAL CORRESPONDENCE

EUROPEAN AND AMERICAN FOUL BROOD

Their Differences, History, and Methods of Treatment

BY OREL L. HERSHISER

There is no subject pertaining to apiculture that absorbs more attention of the apiarist than that of foul brood. In view of the rapid spread of the two types of the disease, especially the European variety, every provident beekeeper is eager to learn all there is to know of them. It has been said that the European type will eventually sweep the whole country; and no one who has had a season or two of experience with it will doubt the statement. To this may be added that the spread will continue with ever increasing ratio. The time is now at hand in many of the states and Canadian provinces when few beekeepers can feel secure from its appearance at almost any time in the breeding season. It is appropriate, therefore, that we diligently seek and digest all the information possible on this subject, to the end that we may counteract its baneful influence on our apicultural endeavors and emerge from its attacks victorious, with better bees and apiaries, with greater proficiency, and with increased production and profits. That all this may be accomplished has been proven by some of the apicultural *savants* who have blazed the way for us.

Of the two foul-brood diseases the European variety is perhaps the more to be dreaded because of its inexplicably rapid spread in the colony, through the apiary, to neighboring apiaries, and to new centers of infection; but American foul brood is said to be the more difficult to treat.

There are various means by which these diseases are disseminated. The observation by many bee-inspectors, that they are more prevalent in and about cities emphasizes the claim that they are conveyed in the honey shipped to the markets, the bees carrying to their hives the disease in the honey they gather from containers when the same are relegated to the scrap-heap or garbage-can. Honey-containers thrown from car-windows have undoubtedly carried the diseases into new centers. It has been carried by shipments of bees in full colonies and nuclei. It has been said that the disease has been conveyed by means of diseased honey used in the manufacture of food for queen-mailing cages.

Undoubtedly swarms often carry the dis-

ease; and as they have been known to travel several miles before arriving at the selected place of abode, the disease may be carried into a new center in this way. If a swarm issues from a diseased colony and occupies a hive where a colony had perished, the disease contained in the honey the swarm takes with it is immediately stored in the old comb, and serves as a starting-point for the disease. When a diseased colony becomes reduced in bees to the extent that it will succumb to robbers, all colonies that participate in the robbing will become infected, thus spreading the disease far and wide.

The above several means by which these diseases may be disseminated applies equally to both varieties; but the very rapid and almost simultaneous appearance of the European variety thru the colony, in so many colonies in the apiary, and likewise in many neighboring apiaries, in contradistinction to American foul brood, is a peculiarity of the European variety which investigators have thus far been unable to explain satisfactorily. It is thought by some careful observers, notably Mr. R. F. Holtermann, that the disease is carried on the feet and body of the bee to the flowers, and that when bees from other hives visit such flowers they in turn will carry the infection to their hives, thus spreading the disease to other apiaries perhaps miles away. This seems probable; but the theory would be more readily accepted were it not the fact that bees are more successfully treated, and that the disease, in resistant colonies, rapidly abates during a good honey-flow, just when, according to the theory, it would be spreading most rapidly. Still this would not be positive proof that the disease is not spread in this way. It is conceivable that, during a honey-flow, the small amount of contamination that would be so introduced into healthy colonies would be insufficient to make the disease noticeable immediately. It might make slow progress for a season or two; but in a colony that is susceptible, it would gain headway in an ever increasing ratio, and finally, when dead, if overlooked by the apiarist or beyond his control, there would occur one of those mysterious outbreaks that reach so many colonies

in the apiary and all the apiaries in the neighborhood at the same time.

Dr. C. C. Miller has a theory which accounts for the manner in which the disease is ordinarily continued in a diseased colony. It is that, "when a larva becomes diseased and dies, before it becomes putrid, the nurse bees suck its juices and feed them to the healthy larvæ, which in turn become diseased." The fact that the disease commences to abate when a honey-flow is on, at which time the larvæ are fed on uncontaminated nectar and pollen, instead of food that is used at times when no honey or pollen is being gathered, seems to support this theory.

Another theory may here be advanced, which is that the peculiar sour-smelling condition of European foul brood, before the dead larvæ become putrid, is attractive to the bees, and that they not only suck the juice from the dead and feed it to the healthy larvæ in their own hive, but that silent robbing may be a condition brought about, especially when the colony becomes depleted by the ravages of the disease by the liking of the bees for the peculiar flavor. In this way it may not only be carried from hive to hive in the same apiary, but from apiary to apiary over a radius extending several miles.

Those who have tried to get colonies of uniform bees of some particular race for exhibition purposes—Italian for example—where most of the bees in the neighborhood are of a different color, know how common it is for bees of one hive to gain entrance to and be accepted in another, even when the different races are in apiaries some distance apart. It is probable that bees become mixed to some extent in neighboring hives and apiaries to a far greater extent than is commonly supposed, and this when not robbing. How much more, then, would there be mixing of bees thru the several apiaries in any given neighborhood when the peculiar odor of European foul brood is present, if it is attractive to them. This silent-robbing theory is strengthened by the fact that often the stronger colonies will be

badly diseased while the weaker ones, having comparatively few field workers, and hence not in condition to engage in robbing, will not take the disease or will be the last to take it. If silent robbing is the cause of the rapid spread of the disease it offers an explanation as to why adjacent colonies, or those near each other, are most likely to be the ones infected rather than a uniform distribution of diseased colonies throughout the apiary.

Messrs. M. G. and C. P. Dadant have advanced the theory that the bacilli of European foul brood are inherent in the queen taken from an infected colony, and transmissible by her. If this is true we are wasting valuable time by employing the shaking and brushing methods, *a la* McEvoy, unless we requeen at the same time, regardless as to whether the stock is of the resistant type. How are we to reconcile this theory with the many cures that are claimed where the shaking or brushing treatment is practiced? and with Dr. Miller's treatment by caging the queen in her infected colony for a period of eight or ten days, and then releasing her? and with Dr. Miller's other treatment by brushing the bees and queen of an infected colony on to brood-combs that this colony had cleansed above an excluder during a period of 21 days? Dr. Miller reports success in most cases with both these treatments. May it be that, with resistant colonies, the bees prevent the disease from becoming noticeable? That larvæ that have inherited it from the queen are so promptly cleared out that it never becomes apparent, and that only in susceptible strains of bees would it gain headway? This point should be cleared up by further experiments, not only by individual beekeepers but by governmental investigators.

Kenmore, N. Y.

[This is the first of a series of four articles by Mr. Hershisser on the history and treatment of foul brood. In the next issue he will discuss Dr. Dzierzon's method of treatment.—Ed.]

WINTER SCHOOL IN BEEKEEPING, MASSACHUSETTS AGRICULTURAL COLLEGE

BY DR. BURTON N. GATES,

Associate Professor of Beekeeping, Amherst, Mass.

The Massachusetts Agricultural College announces its annual Winter School for Beekeepers, which lasts ten weeks, commencing January 3, 1916, and closing March 10. This is one of twenty-eight

short courses carried on simultaneously, utilizing the strong agricultural faculty. It is possible for the students to arrange their work so as to secure several of the 28 courses offered.



Two lectures are given weekly.

The beekeeping course deals with fundamental and practical apiculture; its relation to horticulture—that is, the growing of field and market-garden crops; greenhouse vegetable production; cranberry culture, and fruit-raising. The following subjects, among others, will be included: The natural history and behavior of bees; races of bees; handling and manipulation of the stock; a discussion of queens and their importance; the subject of wintering, spring manipulation, and kindred topics; comb and extracted honey production; the care of apicultural products; diseases of bees and their treatment, together with a discussion of the tools and implements used in beekeeping. First-hand experience in all phases of the subject is emphasized, conditioned only by the season.

This course is usually largely attended. This college is particularly well equipped, both for the intensive and smaller beekeeper. The course comprises two lectures and one laboratory period weekly, with certain periods devoted to special lectures or excursions. Those interested in enrolling should address the Extension Service, Massachusetts Agricultural College, Amherst, at an early date, requesting an application

blank. Full-printed information is available. The course is in charge of the writer, assisted by Mr. John L. Byard.

BEEKEEPERS' CONVENTION.

A convention is usually held annually. The 1916 convention is not yet fully planned. A special announcement will appear in this paper later. The date, however, is determined for March 14-16 inclusive. This forms the conclusion of the Winter School in Beekeeping. A number of prominent authorities will appear upon the program. Remember to set aside these dates and plan to attend.

TWO OTHER COURSES.

The Spring Beekeeping School, May 31 to June 14, 1916, inclusive, is an intensive school for practical beekeepers. An especially attractive course is offered this year. This school is held at Amherst once in three years. A special announcement will appear in this paper soon.

During the annual Summer School a course in beekeeping will be given beginning about the middle of July. This course is designed primarily for teachers and those not able to attend the more intensive course. Announcements will be issued in the spring.

Amherst, Mass.



Students are required to do laboratory work.

COLONIES IN EIGHT-FRAME HIVES

How to Operate Them so as to Get a Maximum of Results in Brood and Honey the old Double-decker Scheme of Years ago

BY C. P. HENRY

While most beemen advocate for this locality (southeastern Oklahoma) the eight-frame hive, it seems to me from practical experience that it is too small. It does not give sufficient room (after storing winter supplies) for an active queen to keep up a colony sufficiently strong through late fall and early spring. The result is a weak colony in the spring when the flow comes on.

Our main flow comes in June and July, and usually lasts from three to six weeks. It seems to me that a larger brood-nest would give the queen a chance to have a rousing colony to gather the nectar when it is to be gathered, instead of having first to rear the brood. The consequence is, when our colonies get strong the flow is about over.

As I have all eight-frames I am thinking of putting another regular body over them and taking three or four frames of brood from the bottom and place in the top chamber to force the bees to occupy this early

also. I believe any good queen is capable of filling ten or twelve frames with brood in an average season. Moreover, we have considerable warm weather through the winter months; and if the colony has plenty of stores I believe they will raise brood through a considerable part of the winter months. My bees are flying today, Nov. 25, nicely.

I should like to have your opinion along these lines as to whether you sanction my idea of dividing the combs as stated.

Hugo, Okla.

[The plan you refer to will work very nicely in your climate; and a modification of it can be used much further north. Some eighteen years ago we worked one yard of eight-frame hives on the double-story principle. As soon as the queen and bees comfortably filled the lower story, we put on an upper story, and in it we placed two or three frames of brood and bees from the lower hive, and filled the space below with

empty combs. Above we put an empty one in each side of the brood, and last of all a division-board. As soon as young bees began to hatch out and the bees needed more room empty combs or frames of foundation were added till the space in the super was filled. Sometimes the brood was spread by inserting an empty comb between two frames of brood.

Colonies so treated built up to good strength, and did much better work in storing either comb or extracted honey than colonies that had been confined to the eight-frame brood-nest through the breeding season. To keep a queen down in a hive that is too small for her is certainly a loss of bees. It is the strong colonies that get the honey, especially when the flow is light.

When we worked on the double-story plan, and ran for comb honey, we removed the upper story and crowded the sealed brood into the lower, and put on one or more section-supers, according to the strength of the colony. This is the plan that has been worked so successfully by Dr. Miller. The unsealed brood was given nuclei, and colonies that were not strong enough to fill even one eight-frame body.

In running for extracted honey we added upper stories, as we called them, until we had them four and even five high. A full

account of our experiments in that one yard will be found in this journal for August 1 and 15, 1897, and Feb. 15, May 1, June 1, July 1, and Aug. 1, 1898.

There is nothing to prevent working ten-frame hives on the same principle. If a good queen needs more than ten frames put on an upper story. The fact is, some of our most successful extracted-honey producers are operating their colonies in two-story hives. One man in particular, who secures a crop of honey every year whether his neighbors do or not, always runs his colonies in two stories. If a queen cannot furnish at least twelve frames of brood in the breeding season he substitutes one that will; and he gets a crop of honey providing there is any nectar in the blossoms.

You can carry out the same general plan in your climate and get the bees strong early in the season, because you do not have severely cold weather. We consider Oklahoma one of the best places in the United States to carry out this scheme. If your bees are all in eight-frame hives we would say it is the only way to secure strong colonies; and it is the only way to get a crop of honey. If you were running for comb honey we would simply remove the upper story at the proper time as already explained.—ED.]

AN AGITATOR IN THE HIVE

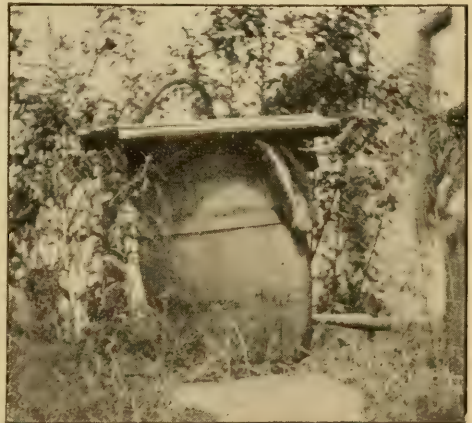
BY ÆSOP

A beekeeper who claims to have found a way to get the honey and not the stings sent for me to look at his device. He told me how he intended to work it for all the honey he wanted, and leave some to sell; and as I found he had gotten hold of a new idea in beekeeping I took a photograph of his contrivance. I will say, however, that I do not advise its use except for those who are afraid of getting stung.

The device, as will be seen by the photograph, consists of a barrel set upon a stand high enough to allow a pail to be put under it to catch the honey as it runs out of the barrel. Thru the cover of the barrel runs a bent iron rod. To the bottom and along the sides of it, at intervals, are cross-pieces of iron with sharp edges to allow them to cut thru the comb inside the barrel and release the honey which flows to the bottom of the barrel thru a wire screen or strainer, and which is drawn off thru the faucet.

The iron rod, or pipe, as will be seen, is bent so as to allow it to be turned like a crank, as it takes considerable force to turn

the knives in the comb after the bees have built around it and sealed it in with propolis. The inside fixtures may be easily understood from the following diagram, from which the device can be made if it is wanted.



Combined hive and extractor—
the middleman cut out.

The bees fasten their combs to the inside of the barrel, and the revolving knives reach far enough to leave a space of six inches between them and the sides of the barrel so as not to cut the comb loose and allow it to fall and drown the bees, but to shave off the cappings and allow the honey to run down thru the strainer, where it is drawn off as needed.

The entrance for the bees being on the opposite side of the barrel from the faucet allows the operator to draw off the honey without disturbing them or he can close the entrance while he is taking the honey.

It may be closed at night after the bees are all in, when there is little danger of being stung except by working the device at the wrong time or in the wrong way.

Since there is no patent on the invention as yet, anybody is at liberty to make one for himself, and use it without being disturbed except by the bees and he will find all danger of being stung is eliminated; and while he does not get comb honey it is a fine way to secure strained honey that he is satisfied is not adulterated—simply turn the crank a few times and open the faucet until the bucket is full; and if you get stung it is your own fault.

ÆSOP.

[Talk about "Bee Hash" honey! Considering the mangled bees and brood, such honey ought to have a "rich" flavor; in fact, it ought to be the equal of any *strained* honey.—ED.]

A WELL-ORDERED BEEYARD

BY W. E. SEAMAN

This apiary is located about fifteen feet from the National Pike leading to St. Clairsville, Ohio, and is one of which any person should be proud, especially if other beeyards in this locality are to be taken into consideration. The yard is well kept. On one side is a row of linden trees; on the

other is a wide border of flowers of all descriptions, and at one end a fence covered with rambler roses. Mrs. Seabright gets the credit for the flowers, as she is an expert in this line. All through the yard. posts have been set on which well-pruned grapevines are clinging, laden with fruit.



A yard of which any one should be proud.

Mr. Seabright aims to keep about forty colonies of bees, and these are arranged in four rows all facing the same direction.

Previous to taking up beekeeping Mr. Seabright was an expert blacksmith. He is still using a wagon built some forty years ago which is trimmed with hand-forged ironwork. It looks better than the wagons of today. He followed his trade until his health failed, and he was advised to take up some outside work. Thru the influence of his wife, who had some knowledge of beekeeping, he started on a small scale. Gradually he got the "bee fever" and went about the country buying up all the bees available to get the combs if for nothing else. He has now been in the business thirty-eight years, and says in all his experience he has no fixed rule for handling bees. He is a student of Moses Quinby.

Mr. Seabright has had a great many different styles of hives, but now uses an eleven L-frame chaff hive with a tall outside top rim. He built these hives in 1883 so he could handle two-pound sections. Recently he went thru some old discarded appliances and found some two-pound sections of honey twenty years old. He has tools of every description for use in the apiary. One thing worth mentioning is a steel bracket which he hangs on the inside on the rim of the hive in which he can place two or three frames.

It can be said that all Mr. Seabright makes is "on the square." He has a power saw and a chest full of forms for putting frames and sections together. He says, "If you have a hobby, have it right," which is good advice if the hobby is a paying one, as his has proven to be.

Wheeling, W. Va.

THE HABITS OF THE SKUNK

BY FRANK C. PELLETT

For several years I have been carrying on observations of the food habits of various wild creatures of more or less unsavory reputations. In some cases most uncomplimentary criticisms have fallen upon my head after the publication of the results of these investigations. The skunk has been of special interest, and the study of this animal has extended over several years, with perhaps three dozen individuals under observation. This animal is so generally condemned that it requires some courage to say a word in its defense.

Nearly every one has known of cases where chickens were destroyed by these animals, and, as a result, the common impression has grown up that skunks as a class are poultry-killing animals. On one occasion I confined a hen in a pen with two large skunks, and, altho they sniffed the bird, and it was apparently a source of great curiosity, they did not offer to injure it. I have at times released captive skunks on my grounds where poultry was easily available, and have done everything to learn the real food habits of these little animals. Some individuals have remained about the place for weeks at a time without disturbing the poultry in the least.

On one occasion some boys found a very young skunk, and, thinking to have some fun, wrapped it up carefully and gave it to a young lady, a daughter of a friend of mine. When she opened her package she was at a loss to know what disposition to make of the animal, but finally gave it to

the cat, thinking that she would kill it. The cat, however, took the little creature to her nest and reared it with her kittens. This animal remained with that family for more than a year, and never once showed the slightest inclination to disturb the poultry. As nearly as I can tell from my observation of the animals, both in confinement and unrestrained, not to exceed one in ten of



It requires considerable courage to say a word in his behalf.

them will form the poultry-killing habit. I feel very sure of my ground when I say that as large a percentage of the house cats are destructive to poultry as are the skunks. It would require altogether too much space to describe in detail the various experiences that we have had with the numerous skunks

here at our home. However, while occasionally one will form the poultry-killing habit, by far the greater number confine their food to small animals and insects.

While I have not made any special study as to the extent that bees enter into their diet, I should expect every skunk to eat bees freely if they chance to find them, for insects seem to be the natural and preferred food of the animals. So far as I can tell, they show little preference as to the kind of insects, but seek those which are most abundant and consequently easiest to obtain. Probably only occasionally does one learn how to get the bees from the hive by disturbing them. As the skunk feeds mostly at night when the bees are quiet, they would not be likely to find them in cool weather unless they had first chanced upon a hive when the bees were hanging out during warm nights. I can readily see that skunks are a serious pest in the beeyard in many localities. On the other hand, aside from the beekeeper, there is seldom serious cause of complaint. So few individuals become destructive in proportion to the whole number, that the good they do far overbalances their injury in the poultry-yard. I am familiar with the fact that, where one animal takes to killing chickens, it often happens that several others of the same family learn the same trick.

It is not a difficult matter for the poultryman to protect his chickens from possible attack; and the destruction of the large numbers of grasshoppers, crickets, mice, gophers, and other pests which make up the bulk of the food of the skunk would seem to make it worth his while to do so,

rather than to fight the pests after killing the skunk.

With the beekeeper it is a different matter, for it is not easy to protect his bees from attacks by the animals. Insects being the preferred food, he can expect a visit from every skunk that chances to pass the apiary. These animals are very skillful in catching insects, and one who has not observed them closely will be surprised at the facility with which they make a capture. Where one's apiary is in a compact form and on comparatively level ground it should not be difficult to fence out the animals with a small-mesh woven fence, altho it would be some expense.

Just at present some of these animals are living in our barn close to the hen-roost. Altho we see them frequently they are not very timid, and show no disposition to attack the poultry, which are housed in small buildings with roosts less than two feet from the ground.

Atlantic, Iowa.

[During this last year, for some reason skunks in this particular locality seemed to have been much more numerous than usual, and the reports of their depredations in different parts of the country lead us to believe that the condition is not local. Perhaps, as our correspondent intimates, the beekeepers suffer the most; but we have always supposed that poultrymen consider skunks as natural enemies on account of the loss of young chickens. Several years ago we shot a skunk after it had killed nine or ten little chickens by biting holes in the back of their heads.—Ed.]

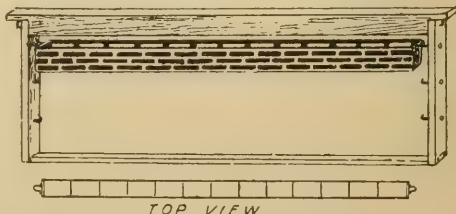
A HANDY QUEEN-CELL CAGE

BY JOHN H. ROSSER

For the past six months I have been working for A. H. Stephens, a 600-colony beekeeper living sixty miles or so from Brisbane and near the New South Wales border. When queen-rearing we tried a cell-cage after Dr. Miller's pattern with queen-excluder sides. (When we used wire-cloth sides our virgins were dark.) The queens from the new cage were good, but it was not as convenient to work with as we should have liked.

Mr. Stephens thought of trying a cage that would hang in a Langstroth frame, and whose divisions would be just deep enough for the queen to hatch in, and just wide enough for the cell to turn around. We used a tin slide for a cover, and found that

it killed a few queens. So we put a strip of calico under the slide—result, a perfect cage.



These are the dimensions: Length $16\frac{3}{8}$ inches, depth $1\frac{3}{8}$ inches, width $1\frac{1}{16}$ inches, with 26 divisions, each $\frac{1}{2}$ by $\frac{5}{8}$ inch in width. To make it, take a piece of queen-



W. H. Blackford, of Capay, Cal., started this yard in June, 1914, with one hundred three-frame nuclei. This June he increased to 238, buying 203 more.

excluding zinc of the right size, solder tin divisions on one side in the top; fold the excluder under these, making the bottom, and then fold up the rest of the zinc, making the other side. Solder this side to the divisions in a few places. Turn the top edges over to make a groove for the tin slide. Solder to each end of the cage a loop to hook over a hook made of a wire nail driven through the end-bar of the frame.

Crowd the bees of a six-frame nucleus on to two frames and this frame with cages. Put cells in against one wall, so as to leave as much room as possible to prevent queens being caught between the cell and wall, as a few are liable to be. Note the age of the cells in the queen-book. When the queens hatch, take the cage around to the nucleus hives and run the queens in with a very little smoke. If an odd queen gets out of a cage, remedy this by not using the division she gets out of. When the first cells are put in they may drop to the floor unless the sides of the cage are waxed.

We had varying results with the smoke method of queen introduction, but at our last experiments we had as many losses with cages as with the smoke. We still use the smoke method and follow the directions carefully, especially in regard to contracting the entrances for a few days.

We have found the method of queen-

rearing given by A. C. Miller a great success; but we have to start our cells in a queenless hive. I use his record-book; and for ease and simplicity in operation it is the best thing on the market. In queen-rearing we have a record of, first, the starter hive, showing just when we gave the cells and how many. An example of the other records follows:

QUEEN-REARER		CELL-MINDER	
March 24,	1 bar, 15 cells	March 28,	1 bar, 15 cells
April 1,	1 bar, 16 cells	April 5,	1 bar, 16 cells
HATCHING HIVE			
April 1, top cage, 15 cells.			
April 8, middle cage, 16 cells, etc.			

The cell-minder is used between queen-rearers, and the cell-cages when we are going full time with cages. We have but three of these. Our nuclei are four in a hive, on L. frames. Hives are numbered on one side, and nuclei numbers, 1, 2, 3, 4, etc., start from that side.

Here is an example of our nucleus record:

No. 1.					
1	2	3	4	brood	honey
13	F13	13	13	4 uns	
				3 s	

By 4 uns we mean "gave No. 4 in No. 1 nucleus 1 frame of unsealed brood;" 3s means "gave No. 3 in No. 1 nucleus 1 frame of sealed brood." F13 means queen failed to mate; 13, queen taken; and 13, given virgin on 13th.

Tambourine, Queensland, Australia.

LAYING WORKERS NOT CLEARED OUT BY SHAKING

Letting the Bees Fly in a Wire-cloth Cage in a Warm Room to Cleanse Them of Liquid Feces

BY MOODY BRENNEMAN

Late last summer I found one of my young swarms of bees queenless, and it already contained laying workers. I carried them (hive and all, after first placing another hive containing one frame of foundation on the stand), a distance from the apiary, and shook the bees all off the frames on the ground. This was done in the evening just before dark. After they had got back in the hive on the old stand I gave them a little syrup, closed the entrance, and left them there a day or two, after which I gave them several fresh empty combs with one comb containing eggs

each side of the comb; and upon close examination I found them covering quite a patch of sealed worker brood.

How do you account for those drone-capped cells at that time, as mentioned above? Now for the thing I wish to get at.

Knowing that such a small colony would never winter over I thought I would try an experiment. I made a two-frame observation hive, to one end of which I attached a small screen cage about 10 x 14 x 22 inches with a board floor and ends, the entrance of the hive opening into the cage. When the frame containing bees was put into this

hive, the bees having been robbed out, they were in a starving condition, some already showing signs of dysentery. I at once brought them with the cage in front of a window where they have been ever since—about two weeks and a half. They have had water, and a small feed of honey each day. Forty-eight hours after being brought in, the queen was laying. They now have some sealed brood; but the old bees (some at least) are not doing well. Each day there are more dead bees in the cage. They look very much like bees having paralysis, but have shown no nervousness as yet. Their



Another view of Lakeside Apiary, Apopka, Fla. See editorial "In the Shade of the Spanish Moss."

and larvæ, and opened the entrance. They built queen-cells. Shortly afterward, upon examining the brood-nest I found the queen-cells gone, and with every appearance of laying workers again—cells capped and being capped, with greatly raised cappings. I did not look long but thought of course the case was hopeless. Not having time to bother with them just then I took out all combs but the one containing brood, and closed the hive (not the entrance), and thus they were left till about the latter part of September, when, upon opening the hive, I found quite a bunch of bees hanging on

comb still contains pollen.

Now, what I wish to know is, would it be possible to have bees inside as above, and be kept in good health, or cannot the inside conditions be made right for them? There are always some of the bees that seem restless, and appear continually to want to get out of the cage, while others go calmly about their business.

Berne, Ind.

[The plan of shaking all the bees of a fertile-worker hive some distance from the old stand has been mentioned before. Sometimes it works, and sometimes it does not.

In your case it is evident that the laying workers came back to the old stand with the rest of the bees after you gave the old stand a frame of eggs and brood. They built cells from the good brood, and later on (you do not say how long after) you found the cells gone. The probabilities are that one of the cells matured and hatched a queen. She probably cleaned out the laying workers and assumed the maternal duties of the hive. One of the best ways to cure a laying-worker colony is to give it a ripe queen-cell, and that is practically what you did.

Attempts have been made before to let bees that are filled with liquid feces fly into

a large wire-cloth cage in a warm room during winter. They will discharge their feces, and some of them will go back into the hive. The high temperature and the general disturbance cause the queen to begin laying; but as a general thing most of the bees thus confined in the wire-cloth cage will worry themselves to death. They will die off one by one until all disappear. The only real remedy is warm weather when the bees can have access to all outdoors. New nectar and new pollen, if there are enough bees to take care of the eggs, will build up the colony; but the process is often slow, usually taking the whole season to build up, and too late to catch the honey-flow.—Ed.]

IOWA BEEKEEPERS INCORPORATE

BY F. C. SCRANTON

The Iowa Beekeepers' Association filed articles of incorporation, and adopted a constitution and by-laws at its fourth annual convention held in Des Moines in the Chamber of Commerce convention room Dec. 13, 14, and 15.

The following officers were elected for 1916: president, C. E. Bartholomew, Dept. Zoology, Iowa State College; vice-president, B. T. Bleasdale, Des Moines; secretary-treasurer, Hamlin B. Miller, Marshalltown, Ia.; directors, J. W. Schlenker, Ankeny, Ia., J. I. Danielson, Fairfield, Ia., and W. S. Pangburn, Center Junction, Ia.

Dr. Phillips, of Washington, D. C., gave an excellent talk on "Outdoor Wintering," and on the evening of the 13th, in the absence of Mr. E. R. Root, who was to have given an illustrated lecture on "Beekeeping," but who, on account of sickness, was unable to attend, Dr. Phillips gave an illustrated lecture on "Beekeeping." In the absence of C. P. Dadant because of sickness in his family, Frank C. Pellett, state bee inspector, read Mr. Dadant's paper. L. A. Kenoyer, of the Iowa State College,

delivered an illustrated lecture on "Pollinization of Economic Plants." Prof. C. E. Bartholomew, of the Department of Zoology, Iowa State College, described a short and efficient method of producing the finest kind of honey vinegar.

The retiring secretary, S. W. Snyder, of the Snyder Bros.' Fruit and Nursery Co. of Center Point, Ia., was presented a fine rocking-chair as a token of esteem and appreciation for long and faithful service.

Upon departing for their homes many remarked that the meetings had been of great value to them, being packed with common-sense talks and discussions. A large number availed themselves of the use of the question-box arranged by Prof. Bartholomew. The questions were mailed to him in advance and then he chose competent men to answer them and printed the questions and the names of those answering them on the program.

The time and place of the next meeting was left for the board of directors to decide.

Des Moines, Iowa.

WISCONSIN BEEKEEPERS' CONVENTION

BY HARRY LATHROP

The annual convention of the Wisconsin Beekeepers' Association has come and gone. It was held, as advertised, at the Capitol in Madison, Dec. 9 and 10. Of the instructors and prominent beemen from other states who were advertised, only Dr. Phillips, of Washington, D. C., was present. The absence of E. R. Root was very noticeable, his

appearance being anxiously awaited during the first part of the meeting. The general attendance was better than it had been in many years. The convention was held in the Senate chamber, and extra chairs had to be brought in. With an increased attendance another year, a larger room will have to be provided.





Sixty were present at the Iowa convention of beekeepers.

The sessions were crowded with important papers and questions, and the interest was always intense; but the thing of greatest value, as we see it, was the paper by Dr. Phillips, on outdoor wintering of bees. Does it not seem remarkable that a young man like Dr. Phillips should go before old and experienced beekeepers and have them willingly and thankfully preserve the attitude of an A B C class? There is a reason: Dr. Phillips, with the aid of his associates and the means provided by the government, has been able to solve questions that could not be solved by individuals, no matter how willing or painstaking they were.

It now seems to the writer that beekeeping is almost to be revolutionized. We have been ready to make the claim that dysentery is a worse scourge than American foul brood. Think of the enormous drain on the industry through winter losses! We

have also been accustomed to figure winter losses as based on the number of colonies that die outright during winter; whereas we should have figured on depletion of colonies. Strong colonies in the fall that come out of winter quarters mere nuclei cannot be said to have wintered successfully. Dr. Phillips shows that, with proper wintering, there would be practically no dysentery in the colonies. Protection we must have, and it must be better than we have been providing, even if we are to keep not more than half the number of colonies. Dairy cows protected in winter as poorly as we have been protecting our bees would pay no income. What we lacked was conclusive evidence regarding proper wintering conditions. This Dr. Phillips has furnished; and if we don't follow instructions we may just as well turn our live stock out in a cold northern winter without protection.

Some years ago the writer wintered a

number of colonies in hives having an outer shell which provided four inches of dry packing on all sides, and as much on top as one wished. We usually placed about eight inches of dry leaves over the top super. Some of these hives produced good crops of honey for ten years at a stretch without swarming or dying out during that time. We wish to have bees again in such hives, but would place two colonies in one house and provide a space of six inches instead of four for dry packing. Would that be about right in my location?

One thing that has caused beekeepers to take too many risks in wintering has been the accidental or occasional wintering of colonies under very adverse conditions. We placed too much stress on these isolated cases and drew too much from them.

As an example of how tenacious of life a small colony of bees can be, in the spring of 1885 we bought some bees in hives that

had a deeper and shorter frame than the Langstroth. It was about like the Gallup frame. In transferring these combs the bottom part was cut off to the depth of a Langstroth frame to which we wished to transfer, and the strips of comb that were left on the frames contained a few cells of brood and a few eggs. The old hives were set back against the fence and let alone. A few bees gathered on the stubs of comb, and in due time each built queen-cells and hatched queens which were fertilized. The little colonies built some comb during the summer. The middle combs reached nearly to the bottom-boards, while the side combs were not larger than one's hand. The hives were allowed to remain where they were. No protection was given. They did not have even a quilt over the frames. The cover fitted only loosely, and I had no idea they would live after freezing weather came on. However, they both lived thru; and



The attendance at the Wisconsin convention was better than it had been for many years.

the spring and summer of 1886 being one of the most favorable for beekeeping ever known in Wisconsin, they both built up and filled their hives with comb, brood, and honey. One cast a swarm which we failed to secure, not thinking that they were so far along. It is interesting to notice anything like this, but it sometimes leads to wrong conclusions.

At Madison Dr. Phillips spoke on the subject of outdoor wintering; but after hearing him one can readily see that the principles of outdoor and indoor wintering are the same. It is a question of proper insulation and the securing of certain conditions for the colony. The question of winter stores becomes far more simple when we understand that, with proper wintering conditions, bees consume very few stores in confinement and start no brood until the proper time.

So much for the Wisconsin convention. Now I would beg the privilege of a few

words for old friendship's sake. Some have asked why I do not write for the journals as I did once. The reason is that the pressure of other work so encroached on my beekeeping that I realized I was not up with the progress of the times. Nevertheless I did not lose interest, but constantly read what others write, and attend as many conventions as possible. Being still in the railroad employ I have an opportunity to attend meetings of railroad men which we hold at times for mutual benefit and instruction. In those gatherings I certainly meet a fine body of men, but my heart is with the beekeepers. I wonder that so few discover what they are losing by not attending the meeting.

I am unable to attend as many as I should like. I wanted to be at the Akron meeting, oh so much! but it was not possible. Then those informal meetings down at Bradentown—how I should like to be in on that deal!

Bridgeport, Wis.

HONEY - LABELS

BY JOSEPH TINSLEY

Beekeepers rarely take sufficient advantage of the art of displaying their produce to effect the best sales, as do the various trade firms of their specialties, such as fruits, syrups, etc. It is candidly admitted that a neat label on any article increases its charm, and gives it, particularly if a food, an appetizing appearance. The public gets absolutely tired of a label if it is of an uninteresting character, such as, for instance,

Pure Honey, or *Honey from our own Bees*, etc. A white label soon shows the dirt and dust in a shopkeeper's window. This state, I always think, reduces the value of the article in the public eye. Nothing tends to diminish the value of an article more than the presence of dust or dirt.

Get a good photograph of your apiary which will give the public an immediate interest. Send it to an engraving house to get a good half-tone engraving made, and at the same time the usual lettering put on such as "Pure Texas Honey from the Apiary of John Smith;" "Pure Raspberry Honey," or as the case may be.

I was spending a day with one of the most prominent beemen of Scotland, Major Maxwell, and could not resist taking a photo or two of his apiary. Later on, when Major M. was asking my opinion on honey-labels, I suggested that this beautiful view



A neat label always increases the charm of an article.

would make an ideal one. I took it to a lithographic artist, who lettered it, and got a half-tone made, which I reproduce. The same label can do also for cans. Another

point worthy of attention is that a similar block can be utilized by the beekeeper when his circulars are printed—note paper, bill-heads, envelopes, etc.

Stone, Staffs, England.

JOTTINGS ON BEE-YARD EFFICIENCY

BY E. E. STERNER

I have shade-boards on all my hives to protect the colonies from the hot sun. I believe that every hive ought to have a shade-board in winter as well as in summer.

In summer it keeps off the hot sun; in winter it keeps off the snow and prevents the cover from rotting.

In the illustration the pole I hold in my hand has an old lard-can attached. It is one of the best swarm-catchers in the world for a home apiary. I would not give ten cents for a manufactured swarm-catcher. They are too small in the first place, and they ought to be attached rigidly to the pole so they will not swing.

Hives should not rest upon the ground, but should stand about eight or nine inches above it, as these in the illustration do. What will you do with the bees that fall to the ground? A strong bee will fly up again,

and a weak or worn-out bee is no good anyway.

Grass ought to be kept cleaned away from around the hives. Why? Bee-moths



Hives should stand nearly a foot above ground.

as well as toads have their hiding-places. You never see a butterfly or toad around my apiary. I keep my hives above ground and cut down all long grass.

Wrightsville, Pa.

HIVES USED IN CENTRAL EUROPE

BY ERNEST TSCHUDIN

Bees are not particular about the kind or shape of their home, provided it affords sufficient shelter and room for building combs. This fact is confirmed by the many kinds of hives used. Almost every material fit for making receptacles has been used for hives — earthenware, basketwork, cork, straw, wood, etc. Of these materials straw has been the most popular for a long time in Germany, Austria, and Switzerland; and even now, after the frame hive has been known there for a lifetime, straw skeps are still in use to some extent.

In the majority of cases the skep owners are farmers who keep a few colonies and are satisfied to reap what they can get with

least trouble and fewest stings. Usually a specialist—a practical beekeeper—has to visit the skep owners in his neighborhood in early spring to cut out the surplus honey. I still remember such a scene I witnessed in childhood on my grandfather's farm in northern Switzerland. The skeps were taken from their shelves in the beehouse, and turned upside down. The bottom-board was lifted, smoke from the pipe was blown in, and the operation began. The skeps in question have a diameter of about 20 inches, and are about 12 inches high.

As the combs do not reach quite down to the bottom-board they remain undisturbed

when the latter is removed, and the combs may be examined with more or less ease. Supply-dealers even offer a comb speculum, a small mirror to be introduced between the combs for examining the cells; also various cages of introducing - cages, specially for skeps, are manufactured. The queen may be caught by drumming off the swarm, etc., which proves that the skep is rather handier than the common box hive, which, in the regions mentioned, is almost unknown. It should also be borne in mind that straw is one of the best insulating materials. But even the practical beekeeper, able to get every drop of nectar by careful management, would be at a loss, as too much honey is to be converted into wax, considering the good price that honey brings in Europe. Under normal circumstances few extensive beekeepers figure among the skeppists; but just here comes the exception. In the most productive honey region of Germany, the Luneburg heath-country, and in a part of Holland, the typical hive is a skep, Fig. 1, with entrance above.

The size and shape of the skeps in different regions vary greatly. Fig. 2 represents a variation—the Kanitz hive of eastern Prussia. It consists of two or more interchangeable bodies and separate straw cover. To avoid the combs being built to the cover,

Fig 1

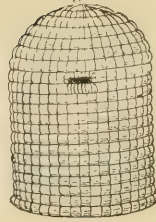


Fig 2

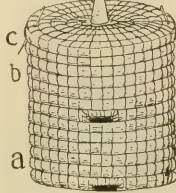


Fig 3.

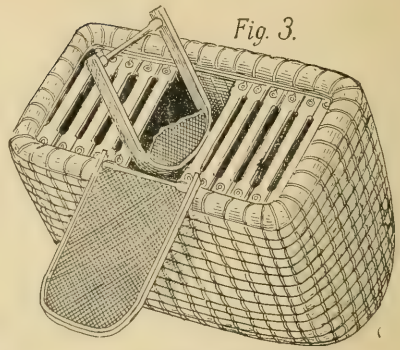
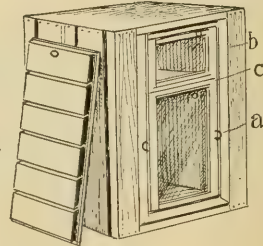


Fig 4.



Varieties of the skep.

top-bars (carriers) with comb starters are placed in the upper story.

A straw hive of peculiar shape, but adapted to the principle of the modern frame hive, is the "bogenstuelper" invented by Gravenhorst, who died in 1898. This hive contains twelve to sixteen frames, and is especially in favor in northern Germany. Fig. 3 will give the reader an idea of it. The other modern hives are, of course, made of wood.

At the convention of the German and Austrian beekeepers at Cologne in 1880 there was adopted a standard measure for the two countries.

and the following size of frames for the brood-room was declared as standard: 8¾ inches wide and 14 9/16 inches high; frames for honey-room half the height; dimensions of hive in accordance with beespaces. Fig. 4 shows a standard hive from the rear, the door being removed so that some of the empty frames are visible in the brood-room (a) and the honey-room (b). The frames hang in rabbeted cleats in a transverse

Fig 7

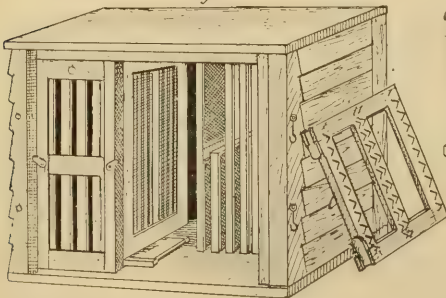


Fig 8

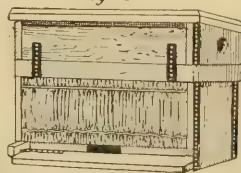


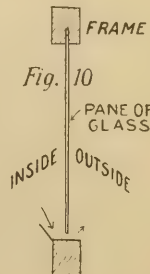
Fig. 5



Fig 6



Fig. 10



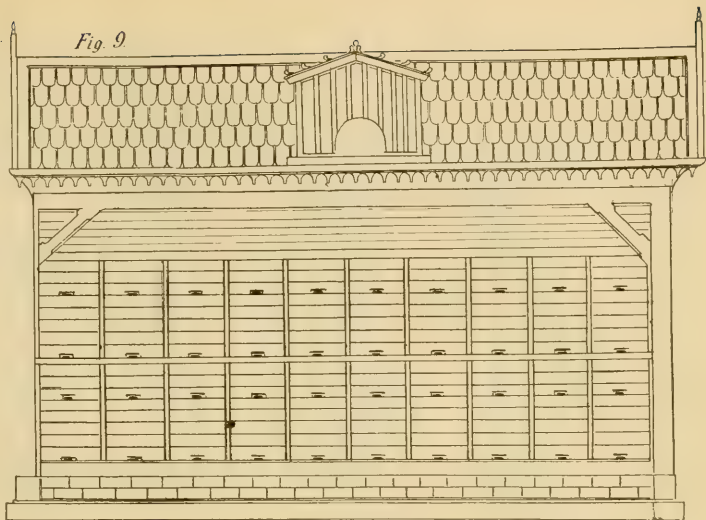
position; or, to understand it more clearly, imagine a Langstroth hive with firmly fixed cover, front entrance also closed, instead of which a new entrance is opened at the right side (being now the front), and the left side made removable (door, now the back end of the hive). That is, in short, the principle.

To operate the hive, one frame after another has to be taken out at the back, for which purpose special tongs are in general use. To put the frames in place again, they are simply pushed forward; and it is, therefore, indispensable that every frame be provided with a spacing-nail or a metal spacer, of which there are many kinds.

To American readers this system might seem impractical; but most beekeepers who are familiar with it are satisfied with the arrangement. On the other hand, one of

those beekeepers once expressed to me his disgust for hives to be treated from the top. "The whole colony is aroused when the cover is lifted," he said. Indeed, in a few points the system shows some conveniences—in the first place, its fitness for the bee-house.

Altho the hive was declared standard, the length was not prescribed. Usually it is made for 12 frames in every story.



A bee-house of primitive design. The fronts of the hives themselves form the side of the house.

In some regions the $1\frac{1}{2}$ -story hive is considered too small, and a hole is provided in the top, to be opened during a good flow when a special super is placed above. When accommodated in a modern bee-house this, however, is not possible, and then three-story or even four-story hives are preferred. In the latter case the upper rooms are also provided with an entrance; and after being separated from the lower story by a division-board one can lodge a second colony, for instance, in a poor season or during winter.

The door in the rear is either removable or moves on hinges. Then follows next in the newer hives a window (not seen in the figure), the frame of which exactly fits the interior of the hive, and that can be pushed forward when contracting the room. Sometimes the glass is replaced by wire cloth, which has the advantage of ventilation when, in summer, the back door is left open. Lately a space of an inch is observed between the hive-bottom and the bottom-bars; and in lieu of a division-board above the lower story only a beespace of $\frac{1}{4}$ inch is left.

The entrance is often guarded by a tin slide. One of the many different styles is shown in Fig. 5. For small entrances, a correspondingly small alighting-board is in favor (Fig. 6), one part of which can be put up to protect the entrance from wind or sun in winter.

In spite of the existence of a standard hive its adoption is not general, and never will be. After the same principle and disposition is made the hive of Baden (but

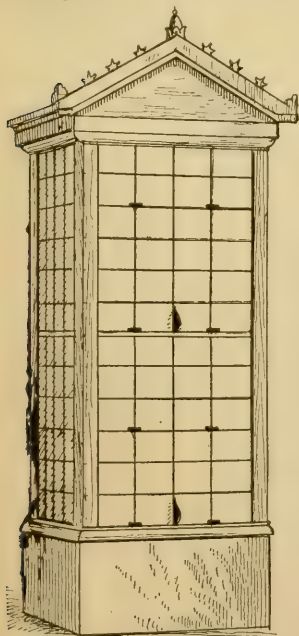


Fig. 11

A kiosk for a small number of colonies.

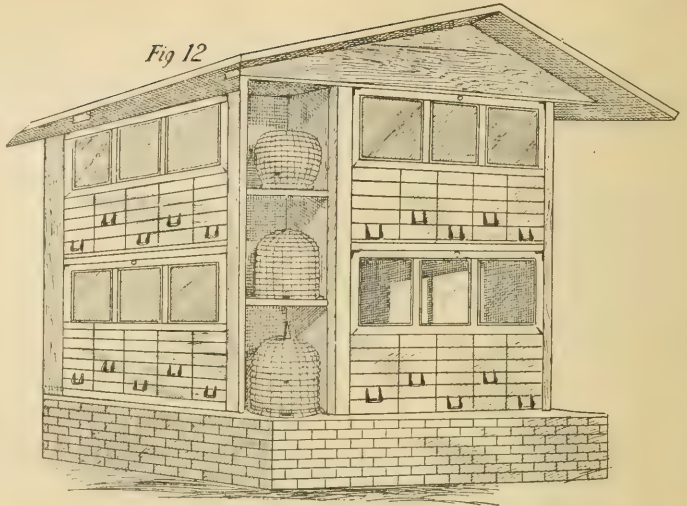
with larger frames). The Vienna hive differs little from the former. The Swiss hive has wider frames, etc.

This general principle (operation from the back and with transversal frames) is maintained in some other kinds of hives which differ more or less in other points. For example, the Alsatian hive (only one story, with special super to be put on top; the Suabian hive (two stories); the Thuringian hive, modified by Rev. Mr. Gerstung, can be manipulated from the top, etc.

However, contrary to the opinion of many beekeepers, some brethren of the fraternity found it an inconvenience to have the frames transversal with the opening, which idea, many years ago, gave birth to a new hive system usually called "page hive" (*blaetterstock*), as the frames are exposed from the side like the pages of a book, when opening the door at the rear. Thus the position of the frames is the same as in the American hive, but are supported at the hive bottom by two or three transversal iron bars. Fig. 7 gives a representative of this group, the Alberti hive, with the door removed. Staples that regulate the space between frames and between frames and front wall are driven into the latter. Corresponding staples are also driven into the door or a separate framework (with glass or canvas serving as a window) that must be put in place before closing the hive. Queen-excluder, division-board, etc., adapted to the construction, facilitate the management. A modification is the Dadant-Alberti hive (improved by the Swiss Rev. Mr. Streuli (frames wider than high). The Spuehler hive and the Reidenbach hive are other forms that belong to this group.

The American hives, or similar styles, are also known, and the new edition of a well-established treatise on beekeeping says,

Fig 12



Bee-house designed by Rev. Gerstung.

"The American system has found of late many followers also among our beekeepers." Undoubtedly this would be the case to a much greater extent if it were not for the fact that the traditional bee-house interferes somewhat with the operation of the American hive.

With the hives described, their long list is by no means exhausted; but they represent at least the most typical and important ones in use now. But why this diversity of hives? Amateurship has surely contributed a good deal to it; but it is also a vivid proof of the existence of a progressive beekeeper's spirit.

In France the hives with manipulation from the side are unknown, the most popular modern hive being there the Dadant-Blatt. In arrangement it is almost identical with the American hive except the size of frames (12 frames 10 $\frac{5}{8}$ inches high, and 16 17/32 long). Efforts have also been made to introduce among farmers the economical one-story hive invented by de Layens, a form of the Long Idea hive known in America, with 20 frames 12 $\frac{1}{4}$ in. high and 14 9/16 long. It is made single-walled, back and front, sides covered with a straw mat, Fig. 8.

Basel, Switzerland.

NOTES FROM GERMANY

BY J. A. HEBERLE, B.S.

CROP AND MARKET.

The honey crop in Germany this year is good to very good. I have not had a crop like it since 1905. The demand for honey

at a good price is equal to that in years with a short crop. In part, at least, this is due to the fact that no honey (or but little) is coming from Cuba and South America.

HONEY FOR THE SOLDIERS.

Large quantities of honey are given the soldiers, not only the convalescent in the hospitals and sanitoriums, but also to those in the field and trenches. This has also favorably influenced the general market. Liquid honey is sent to the front in tin tubes, in tin cans, and in cans with aluminum bottoms, and push-in cover, with the sides of pasteboard. Crystallized honey has also been sent in parchment paper, etc. The soldiers appreciate the honey very much. Bread and honey make a fair lunch compared to dry bread. Those poor men (friend and foe) in the trenches get their hot meals very irregularly or not at all, because the "field kitchen" can approach only under cover of darkness; and even at night it is perilous—sometimes impossible.

NEW OR OLD COMBS?

This question is much discussed at present. By men of experience, extreme views are advocated. Some hold that old combs are dangerous; that they contain disease germs; that a colony on old combs does not develop itself as rapidly as on new ones; that bees do not (or only rarely) swarm from old combs; that they do not build queen-cells readily, etc. Some say that often beginners have unusual success because the bees are building much and are on new combs; but later, when the combs get older, and the bees are not allowed to build freely, the former success is changed to failure.

Others with equal positiveness say that old combs are saturated with formic acid which would kill all disease germs (?). If such an old comb is taken out it spreads a delicate perfume, and this perfume pervades the hive of a healthy colony.

Usually extremes should be avoided in everything as well as in the case of combs. Some have recommended in the journals the renewal of the brood-nest every two, three, or four years. I think it is natural, and correct from the practical point of view, to let the bees build. The extent is influenced by the condition of the colony, the weather, and the locality, or, to be more explicit, by the pollen and nectar furnishing flora within the reach of the apiary. Some few beekeepers use only virgin combs in the extracting-super, believing that old combs color the honey and affect the aroma. I consider it very important to have only first-class worker combs in the brood-nest, and that it matters not so much whether brood has been reared in them for three or six years. I would not suppress, if I could, the rearing of drones; but would, if it were

practicable, have a few of the best queens furnish the drone eggs to the other colonies—at least to such as are, after careful consideration based on close observation booked at the time, found undesirable.

QUEENS MATED BY DRONES OF THE KEEPER'S CHOICE.

This should be the ambition of the ambitious beekeeper—consummation devoutly to be wished. All beekeepers seem to agree that, were it possible to mate the virgins of the choicest breeding with drones from a colony specially selected for the purpose, we would, in a very short time, have bees that would bring considerably more surplus—to be more definite, double the average. There would be greater uniformity. Nearly all colonies would be populous at the right time, few would swarm, and those that would swarm would do so at a time when it would least interfere with the purpose of the beekeeper. They would be very industrious, and easy to manage.

The first and most important care would be to give them sufficient room to store the surplus during the honey-flow to supplement the winter stores early in case they should be short, and provide ample protection in winter, and especially in the spring, against the inclemency of the weather. Such colonies a beekeeper could, with the same amount of exertion, manage double the number of colonies, and these would average at least twice the amount of surplus of today. That means that a beekeeper with such bees could secure four times as much surplus as at present. If beekeepers want more than that they should try another planet.

Even if the beekeeper should not reach the goal (control of mating) it may be that the conditions under which mating has taken place for uncounted centuries are a sufficient safeguard to exclude inferior males from taking part in the perpetuating of the race, and prevent deterioration.

If we heed the counsel eminent beekeepers have given us as a result of their extended experience and careful observation, we can at present improve our inferior half of the apiary by careful selection of the breeding material on hand that may have been purchased and has been found well adapted to the locality; but we must remember that the conditions under which, from the time the egg is laid until the fertilized queen is introduced to a full colony, especially until the cell is capped, are at least of equal if not superior influence in determining the quality of the young queen rather than her ancestry.

Kempton, Bavaria, Germany.

THE QUIN-COMPACTNESS HIVE—SUPERS BESIDE THE BROOD-CHAMBER

BY W. F. M'CREADY

A lame shoulder set me thinking of modifying the hive so its manipulation would not require lifting heavier than that done in handling combs of honey, and yet remain as satisfactory in most respects as the ordinary hive.

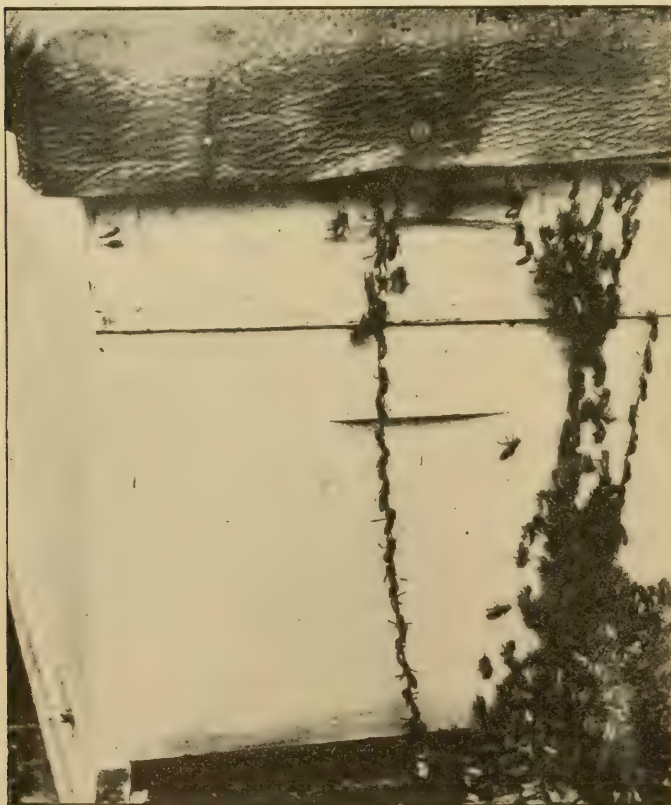
To place the brood-nest and supers in proper relation to each other appeared to be most important. Three supers were set side by side; but to add another in that arrangement seemed not sufficiently compact. Accordingly, two other supers were placed across the ends of the three.

Naturally the brood-nest should be the central one of the group, as there it would be furthest away from its enemies, robber bees, etc. In that position a super could be placed upon the top of the brood-nest and another up against its bottom side. These six supers so thoroly protect the brood-nest as to permit leaving it on its stand outside all winter.

But how pass the bees into the brood-chamber? The final method was to use three-eighths of an inch of almost the entire length of the bottom-board of the front super as a channel thru which the bees could pass from the outside directly into their brood-nest.

To admit the bees from the brood-nest to the supers, V. V. wire strips, cut to special size, were secured, and attached to openings made in the sides and ends of the brood-nest, practically as shown in Fig. 2.

Where one side of each super is removed, notice that frames are hung in the openings made in the sides and ends of the brood-nest, thereby giving that much additional comb area. If another such brood-nest is placed on top, and supers also ranged around it, eight frames nearly the full size of the sides and ends of a super will be added to the capacity of the two-story brood-nest.



On the lower left-hand corner of the edge of the front super may be seen a small vertical block. In use it fits into a corresponding cavity in the edge of the bottom of the left super. There are sets of these at all corners. They automatically lock the five supers together and prevent their being pulled apart. To make this fastening, two of the supers are placed against the brood-nest, and the other two are lowered one by one into position against it while the locking apparatus of one is engaging that of two others.

To remove a super, it is only necessary to lift it, automatically releasing it from the others.

With the improved hive there is no lifting of heavy supers of honey to set the bee-escape board under.

A string of bees. They hung from cover to bottom-board without touching the hive-body or super. Photographed by William Bair, of Odon, Ind.

It is only necessary to lift the super-cover and place a division-board containing a bee-escape at the side next to the brood-nest. Nor must one do heavy lifting in the removal of honey unless it is desired to take it all away by a single operation. In this case the super can be removed from its position, and an empty one put in its place.

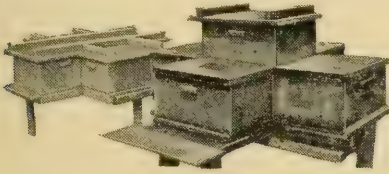


FIG. 1.—The hive assembled.

At the beginning of the season last year, a colony which had just been robbed out, and probably a thousand or more of its bees killed, was placed in the improved hive, without any stores, and by the end of the season it had overtaken and excelled in all respects the best of other colonies in ordinary hives.

This season, to give it a different test, the first swarm was placed in an improved hive; and on the same day and for the next few following, swarms were put in ordinary hives, under otherwise similar conditions. The last time these swarm colonies were examined the one in the improved hive was found to have gained ten combs in honey production over the best of the others in the ordinary hives.

To summarize, this hive is: (1) The only single-walled hive having its brood-nest at the center, where it naturally should be. (2) It is the only one of great capacity, each part of which has its separate cover, etc.—the maximum of convenience with the minimum of disturbance in its manipulation. (3) It is the only one giving as much or more comb area in eighty-eight supers as is to be had in a hundred supers of other makes of the same size. (4) It is the only one in which ten supers can all abut directly on the brood-nest. (5) It is the only one in which, on account of all the surfaces of its six sides being used for abutting supers, is perfect in its compactness. (6) It is the only one which can be used to protect itself against cold weather during the winter. (7) It is the only one which goes a long way toward being completely robber-proof.

Before seeing the photographs of the hive, Mr. H. H. Root, managing editor of *GLEANINGS*, thought "the connection between the brood-chamber compartment and the supers is so slight that the bees might prefer to clog the brood-combs with honey

before entering any of the other compartments." Again, that "on cool nights they would desert the surplus apartment entirely."

Referring to Fig. 2, it will be seen that the connection is the reverse of slight, the openings in the sides and ends of the original brood-chamber being so extensive that only the margins are left to hold it together. I had thought about it somewhat as Mr. Root had; and therefore, not to discourage the bees, I gave them free access to only one of the supers, excluding them from the other three by means of division-boards with but a single bee-space aperture between them. But when I next opened the hive, I was surprised to find work being done vigorously in two or three combs of each of the four supers.

From the results of this hive during the two seasons, I think the idea that cool nights would affect it is erroneous. I once resided in a house which had one very large, low-ceiled room in it. During the winter the temperature in that room was always more equable than in other even much smaller rooms with high ceilings, the heating apparatus in the different rooms being similar. The improved hive may be compared to the low-ceiled room and the tiered-up ones to the high-ceiled. The long-channel entrance may also soften the air coming in. This can be readily appreciated by those who have been in tunnels of coal-banks, and noticed the total absence of atmospheric disturbance due to outside weather conditions.

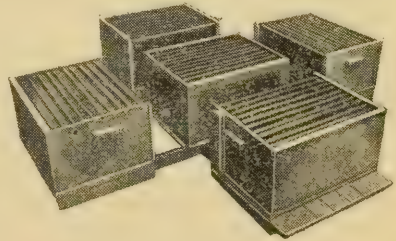


FIG. 2.—The hive taken apart.

Mr. E. R. Root, editor, objected that: (1) "It would cost a good deal more to make a hive of equal capacity on this plan than it would on the tiering-up plan." I admit there would be the costs for the additional covers and bottoms; also for a few cents' worth of wire netting of worker-bee-size mesh with which to cover the openings in the sides and ends of the brood-nest. But I claim that these costs would be almost immediately repaid, over and over, in the added comb area of twelve or more per cent given to each super; in being able to manipulate each super separately with a maxi-

imum of convenience to the operator and minimum of disturbance to the rest of the colony in the other supers; and in the total absence of necessity for heavy lifting.

(2) "Your hive-stands would cost considerably more. In northern climates the stakes after they have been used will be moved around in all directions by the frosts or the freezing of the ground. The hives would have a tendency to pull apart."

Stakes were not used with the hive-stand; but provision had been made for legs for it, attached to its frame in such a manner that they would fold up against the latter, permitting of shipment of the light strong hive-stands in the flat in bales at small cost. When the legs of these hive-stands are set on bricks, the hives will not get out of alignment nor pull apart.

(3) "I doubt very much whether you would be able to get a queen which would be prolific enough to fill not only the four side supers but the brood-nest as well with bees. It is very seldom that we have a colony strong enough for anything of this kind (filling four extra supers with honey). I am afraid you would have all kinds of trouble with it in the North. You are contemplating four extra supers."

Replying to the last part of this first, if I get a good long season and a black-mangrove flow, I can fill a two-story brood-nest and ten supers placed against its six outside surfaces; altho I presume that generally the bees will be mostly clustered in the brood-nest and at the points of unfinished work. I anticipate no more trouble with the improved hive in the North than in the South. If supers are not lacking, the weather warm, and the colony strong, simply furnish the latter with brood-nest and four supers, and, when these are filled, provide more supers, as described elsewhere.

If the colony is not strong, nor the weather sufficiently warm, I would place close-fitting division-boards in the supers,

just outside the combs in which the bees were working, and thus provide them an ideal workshop in and around the brood-nest. If I were short of supers I would tack covers over the sides and ends of the brood-nest and start the colony in that alone. When more room is needed, one side or end could be uncovered, a super placed against it and the two held together on the hive-stand by means of a few nails driven into the latter at edges of the supers, and this plan followed until the five supers were there to be locked together by each other.

As I have not had experience in the production of comb honey, I suspect some of the methods would have to be considerably modified for that work.

Estero, Fla.



Bees removing dead stag beetle which they have dropped to the hive-stand in front of the bottom-board. Workers can be seen fanning, and drones sunning themselves. Photographed by Frank C. Pellett, Atlantic, Iowa.

WINTERING BEES IN VIRGINIA

BY FRANCES W. GRAVELY

After reading what Dr. Phillips has to say about the wintering of bees, and from the experience I have had along that line, I am under the impression that it will pay the beekeepers of Virginia to experiment to see whether it will pay them to continue to winter their bees in the old way—that is, just leave them to winter if they can. I know bees *can* lie wintered in Virginia without being protected; but I believe it

would more than pay the beekeepers to give their bees proper protection in winter. I ally the bees will be mostly clustered in other outdoor protection is the best for this locality; and I am expecting to give the Holtermann case a thoro test next winter.

In the fall of 1913 all of my bees were weak from making a heavy increase, and I wintered them in ten-frame hives on six combs with division-boards on each side,

and the space on each side filled with packing; and they came through the winter in fine order and built up to full colonies by the time our earliest flow began. But in the fall of 1914 my colonies were all very strong, and I gave them no protection at all. The following spring they came out weak, and were a long time in building up. I lost more than enough honey to pay for cases and packing. It was a mild winter at that.

The bee business has not made the progress in this section that it should. There are many bees scattered around on the farms, and they are kept in old log and box hives with but very little profit. It is hard to convince the farmers that, with the proper equipment and management, they can make money with their little apiaries. I am proud to say we have a few successful apiarists, and have prospects of having more.

There are many beginners. I am inclined to believe some of them will make a success. I hope so.

Those that are studying the business, and reading the bee journals, I think are making good headway; but there are some who think all they have to know is how to hive a swarm and take the honey from them when it is made. The consequences are they don't have much trouble in taking the honey.

There is no reason why Virginia should not be one of the leading states in the Union for the production of honey, as we have about a three months' honey season, and there is a large number of the best honey-yielding plants such as tupelo, locust, poplar, persimmon, sourwood, blackberry, and different kinds of clovers, and many other small plants which help a good deal.

Stockton, Va.

HEARTSEASE TURNS FAILURE INTO SUCCESS

BY W. S. WILLIAMS

Last fall I put up in winter quarters 83 colonies of bees which were unusually heavy from the fall bloom of aster and smartweed. When I went over them in April there were twenty-nine dead with from two to four combs of honey. The entire inside of the hives was plastered with stain. They still kept dying till reduced to twenty-six. All seemed weak until late. There were no swarms until the middle of June, and only about five until in July. They then got very strong, but did not go into the supers to any account until buckwheat bloom.

They then just rushed things and started swarming in earnest. Eighteen of the twenty-six that survived swarmed twice, and the second swarms were seemingly as large as the prime swarms. Never in all of my bee experience have I seen colonies build up

and overflow so quickly. They kept up the swarming until Sept. 2. They all filled up their brood-combs, and some which swarmed the last of August gave me one and two supers of the finest light honey I ever had.

It was all from smartweed or heartsease and aster. It was a wonderful crop. The cornfields and potato-ground were a mass of the heartsease. Some of the wheat-stubble fields produced a late crop of it on account of the wet season. I had a little over a ton of honey from the twenty-six, spring count, and increased up to sixty-five colonies. All are going into winter unusually heavy and strong.

This locality is getting to produce more honey from the fall bloom than from the summer season. Each fall seems to get better, and the honey is water-white and of a very pleasant flavor.

Julian, Pa.

A WINTER CASE OR HOUSE

BY L. M. AUTHAN

We winter our bees in long rows. We build a long house, six feet high, four and one-half feet wide, as long as is necessary to accommodate our colonies. The house has doors at each end.

We cover the top with cheap roofing-paper, and the sides with oiled paper. Holes are left in the sides corresponding to

the entrances of the hive. It is possible to make the house a double-decker if necessary. These sheds can be taken apart in 16-ft. sections, and moved whenever desired.

I throw old carpet or any packing material I happen to have over the bees inside, and they are nice and dry. Combs in colonies kept this way hardly ever sweat. Mois-

ture which is so bad for bees is never created in the hives.

I find that bees kept this way come out much better in the spring than by any other plan of wintering. I leave parts of my bees in the house all summer, and find they do well.

I have worked with bees for thirty years, and find there is still much to learn. My own experience favors a compact hive of 12 x 12-inch frames. The colonies keep better and make more honey, one year with another.

Emlenton, Pa.

TICKLING THE PALATE OF A NATION

While national conventions of beekeepers and writers in the journals of apiculture have been insisting that something ought to be done to boost the sales of honey, it has already been done. While repeated suggestions and plans have been broached for getting articles about honey into the newspapers and magazines, lo! it has already come to pass. It is not too much to say that, at the present time, honey is getting more general unpaid publicity than any other food product.

The *Delineator*, a magazine with a circulation close to the million mark, published in its January, 1916, number three columns of recipes for the uses of honey in cooking. The January number was on sale December 10. The *Delineator* is one of the oldest woman's magazines in the world. It has been called "the most helpful and best loved of all magazines." If the National Beekeepers' Association had purchased this space to fill with matter of similar nature it would have cost about \$4000.

Three columns of recipes calling for honey will appear in the *Pictorial Review* for March, 1916, which is on sale Feb. 10. The circulation of this fifteen-cent woman's magazine is more than a million. The same amount of paid publicity for honey would have cost probably another four thousand.

American Cookery, probably the foremost culinary publication in this country, contained in December a recipe for a honey cake. *Good Housekeeping* for the same month has a recipe for "honey fluff." The *Cooking Club Magazine*, of Goshen, Ind., is reprinting the recipes for honey cookery which appeared in GLEANINGS for Oct. 1.

Farm magazines these days are making so many allusions to the use of honey in cooking that it is impossible to keep count of them all. The *Country Gentleman*, of Philadelphia, for December 4 had a note recommending the use of honey in this way. *Farm and Ranch*, published at Dallas, Tex., one of the largest papers of the Southwest, had two columns of honey recipes in their Dec. 11th issue. The *Alfalfa Journal*, of Sioux Falls, S. D., a progressive new paper

which has been mentioned in these columns before, is using from time to time some of the recipes of the Oct. 1st GLEANINGS. Each recipe is illustrated.

If the references to honey in farm magazines are hard to keep tab on, what shall we say of the daily press? Two or three examples are all there is room for. The *Cleveland Leader* for Sunday, Dec. 19, contained half a dozen honey recipes. The *Cleveland News* lately had one for Lebkuchen which requires honey. A few weeks ago the *Plain Dealer* of the same city had a number of honey recipes, as well as suggested menus of which honey was a part. A number of papers had recipes for Christmas candies. Almost invariably the editors included one or more requiring honey. Two weeks ago the Worcester (Mass.) *Telegram* printed two columns of reading-matter on honey, its nature, preparation for market, and distribution.

Domestic-science teachers in the public schools are turning to honey with enthusiasm. The qualities of superior texture and enduring freshness which honey imparts to cakes and cookies are esteemed by these instructors and explained to their pupils. Grocers, restaurateurs, and proprietors of delicatessens are finding honey increasingly popular with their patrons. The number of new honey preparations is increasing rapidly. Witness a new confection recently put out in Chicago, said to be made from honey by a secret process, yet nothing more than bars of granulated honey encased in chocolate.

Here and there progressive bakers are springing new honey foods on the public, and finding them highly popular. A baker in Medina, for example, made up a batch of honey cookies over an original recipe and sold them out the day they were made.

At last honey seems to be coming into its own. How long the welcome publicity it is now getting will last we cannot say; but there is every indication that it will continue to have its "place in the sun" on household pages, in cookery departments, and on grocery counters.

Heads of Grain From Different Fields



The Backlot Buzzer

The amateur who bought a hive of blacks last year to study their habits has learned more than he figured on. Anyway, he says he's mighty glad winter is here. They are all in the hive, and won't be out till spring.

Here's Orthodox Bee-story

Pelham Grenville Wodehouse, prominent writer of fiction, must have been a beekeeper. In his serial story, "Uneasy Money," now running in the *Saturday Evening Post*, he introduces Elizabeth Boyd, the heroine of the plot, as a beekeeper; and in the installment for Dec. 18 it turns out that Lord Dawlish, alias Mr. Chalmers, also at one time worked with bees.

The high-spirited Miss Boyd, resenting Chalmers' presence on her farm, plans to trap the young man in the apiary and get the bees to sting him badly. Part of the dialog follows.

"Elizabeth's irritation became painful. She resented his smile. She hung the smoker on the side of the hive.

"The stool, please, and the screwdriver."

"She seated herself beside the hive and began to loosen the outside section. Then taking the brood-frame by the projecting ends she pulled it out and handed it to her companion. She did it as one who plays an ace of trumps.

"Would you mind holding this, Mr. Chalmers?"

"The surface of the frame was black with what appeared at first sight to be a thick bubbling fluid of some sort, pouring viscously to and fro as if some hidden fire had been lighted beneath it. Only after a closer inspection was it apparent to the lay eye that this seeming fluid was in reality composed of mass upon mass of bees. They shoved and writhed and muttered and jostled, for all the world like a collection of home-seeking New Yorkers trying to

secure standing room on a subway express at half-past five in the afternoon."

She gets him to shake the bees.

"Lord Dawlish watched them go with a kindly interest.

"'It has always been a mystery to me,' he said, 'why they never seem to think of manhandling the Johnny who does that to them. They don't seem able to connect cause and effect. I suppose the only way they can figure it out is that the bottom has suddenly dropped out of everything, and they are so busy lighting out for home that they haven't time to go to the root of things. But it's a ticklish job for all that, if you're not used to it. I know when I first did it I shut my eyes and wondered whether they would bury my remains or cremate them.'

"When you first did it?' Elizabeth was staring at him blankly. 'Have you done it before?'

Her voice shook. Bill met her gaze frankly.

"Done it before? Rather! Thousands of times. You see, I spent a year on a bee-farm once, learning the business."

Simmins Starvation Introduction Successful

Replying to Mr. A. T. Rodman's article on page 896, Nov. 1, I wish to say that this plan of introducing is the old Simmins method, described in the A B C and X Y Z of Bee Culture.

I too had a great many failures in introducing this year. The cage plan was a failure, as was also the smoke method. Knowing of the Simmins method I decided to try it, and did, with great results. Mr. Rodman tells us in his article to be sure to introduce the queen after dark; but I killed old queens at noon and introduced by this method thirty minutes later. A flow of nectar was on from the aster, and this may account for my good luck. All of those introduced at noon were accepted.

Altho this is a good method for introducing, like all others we shall have some failures at times. I have never found a method that was infallible, and wish that I could. Better results were obtained this year with the Simmins method than by either cage or smoke method.

Morgan, Ky.

J. E. JORDAN.

Wintering in Texas, and Other Observations

When one reads so much about packing bees away for their winter nap it makes him smile to think he is not to be troubled that way down in Texas, where the bees fly very nearly every day in the year. Of course we have a day or two now and then when our bees have to stay in. I winter on the same stand from year to year.

I might say my bees are the very best three-banded Italians, the only kind of use for honey production in this section of country. Swarms! Yes, I think I had a swarm or so once while I was sick and could not give them proper attention.

My surplus is from horsemint and clover, although there are quite a number of other sources from which our bees draw. I raise my own queens, and think I get better results than trusting to let the bees take their own will about their mother.

There are very few bees about my yard, and it is a show to lots of folks to see the hive opened up and have the queen pointed out to them. A large majority want then to see the "king bee."

I use the standard eight-frame hive, and run them for chunk and extracted honey, and always have more orders than honey; yet I get a good surplus.

Nacogdoches, Texas.

W. S. CHADWICK.

What Would You Do in This Situation?

I had 150 colonies, spring count. I don't know how old a queen is in the lot except one or two. That doesn't speak well for a beekeeper, but that is the size of it, and what I want to do is to get on the right trail this comin' season.

Our honey-flow starts here about the last week in June; but fruit-bloom comes about six weeks earlier, so there is a dearth between fruit-bloom and anything else, tho as a rule there are lots of swarms issuing during fruit-bloom. I am mentioning this so you will know conditions here.

Out of the 150 I have lost fifty, mostly from American foul brood, and I have brought all home, put them in a corral with a windbreak on the north, east, and west. I have rendered all the diseased combs and charred the hive-bodies, tops and bottoms. I have nearly a hundred nice extracting bodies with drawn comb, and several with full sheets of foundation. All are eight-frame hives.

Now, I want to buy one hundred queens next spring, and I want to know when is the best time to get them. What should be done—make nuclei or put them in the old colonies? I want at least fifty new colonies, and I also want a honey crop. As I said, I don't know which queens are old and which are young, and I should like some advice from the more experienced as to just what they would do.

Albuquerque, N. M.

R. E. PIFFLEY.

[Presumably you have about a hundred colonies left. There will probably be a further shrinkage of 15, leaving you 85. Twenty-five of this number, the weaker ones, should be devoted to increase, leaving a balance of 60 good colonies for the production of honey. It is not profitable, usually, to try to run for increase and honey from the same colony; and hence we would make the divisions as proposed. With the 25 you should be able to increase to 50; and if you have had some experience you can make an increase of 15 up to 50. Stimulative feeding should be practiced by feeding half a pint of syrup daily. Young queens should be supplied to the colonies split up into nuclei for the purpose of increase, but don't split to more than half—two colonies from one.

The 60 or 70 colonies run for honey should be made as strong as possible. Be sure to use only strong colonies, devoting all the weak ones or medium-strength colonies to increase. When a colony in an eight-frame hive is strong enough, put on an upper story and add combs and raise two or three frames of brood from below. If you run for extracted honey, you will tier up; but you should keep all brood below the second story: and as the season advances, confine it to the lower story by means of perforated zinc.

If you are sure your extracting combs are free from disease you can use them; but watch all colonies very closely where they are placed, as the disease may break out again.

Get your queens of some reliable breeder at the time you make increase, and introduce them to full colonies and nuclei, following closely the directions furnished by the queen-breeder. By contracting for a hundred queens you will be able to get a reduced price, altho the queens may be sent to you in lots of ten at a time. Don't divide until settled warm weather comes on. If you do it too soon you may lose a lot of good brood.—Ed.]

Aster Stores Candy Solid

Aster honey in this locality is not good winter feed. If capped over and well ripened it candies solid in the combs. If not capped, the sugar in the honey granulates and leaves a thin liquid in the cells which will sour and make the combs damp. It comes mostly from a small white aster about eighteen inches high which branches out a good deal.

BEEs EIGHT MILES FROM THE HIVES.

I believe the letters in late numbers of GLEANINGS regarding the distance bees will work from the hives do not reach the limit. When I began taking GLEANINGS in the eighties, a man on the coast of Washington wrote that he found his Italians eight miles from the hives. The bees were on an island a mile from the shore, the island five miles from the mainland, and the bees were found working in the swamps two miles from the beach. The owner of the bees had the only Italians in that part of the state.

At another time I read in GLEANINGS of a man in Wisconsin who followed a line of Italians seven miles and found them across a river in Minnesota. Again, a man in the northern part of New York followed a line of bees six miles and they went over a mountain to the tree.

When "Rambler" was keeping bees in California, near Redlands, he stated in GLEANINGS that his bees did a paying business working on the orange-orchards five miles from the hives.

I believe good Italians will work three and a half or four miles from home if they cannot get honey nearer.

New Hampton, N. Y.

E. D. HOWELL.

Simple Cure for Bee Paralysis

Paralysis has been the means of reducing our crop to a considerable extent in two or three of our yards for the last few years, gradually getting worse. At first we paid but little attention to it; but the number of colonies affected steadily grew, and the severity of the disease seemed to increase from year to year. We tried setting the hives up on stilts so that the affected bees would fall out and not return. Some have used a tin (five-gallon can or the like), to be buried just in front of the entrance with the top on a line level with the alighting-board. This caught the bees unable to fly; but this year we hit on a plan that seemed to be entirely satisfactory.

With the other plans the bottom-board has been left on, and the sick bees fall on that and not at once away from the combs. Our way now (and it has been entirely effective in curing every colony treated this year) is simply to remove the bottom-board from the hive; get an empty body, old box, or anything that will hold the hive and colony up a foot or so from the ground, and set the hive minus the bottom-board on it criss-cross or any way so that there is plenty of space for all infected bees and dirt to fall away. We tried this on a great many sick colonies this year without much faith; but the results were indeed surprising. From many of these such colonies as formerly we would expect but little if any surplus from, we harvested nearly a normal crop of honey. Of course they must be treated before the force is too badly gone. We left them in this condition until along about October 15, when ready to fix the yards up for winter.

It now remains to be seen if the disease reappears in the spring. If it does, this plan at least saved the crop of honey; and if it does as well each year it will be sufficient. What was the reason that we got honey from all those paralytic colonies?

It seems to be a disease that, to a certain extent, comes and goes, eases up for a time, and then grows worse again. We changed the queens in a few colonies, but also treated them as above, so the experiment was valueless so far as the requeening is concerned.

I don't know how general this disease is; but I do know that it has been the means of reducing our crops a good many thousands of pounds during the last few years. In this locality this is a thing that can not well be overlooked.

Spokane, Wash.

H. E. CROWTHER.

A. I. Root

OUR HOMES

Editor

Give us this day our daily bread.—MATT. 6:11.

Behold they which are gorgeously appareled and live delicately are in kings' courts.—LUKE 7:25.

In all thy ways, acknowledge him, and he shall direct thy paths.—PROV. 3:6.

I believe it is generally understood that this first prayer implies that God may give us the chance or opportunity of *earning* our daily food by honest work, or the *means* wherewith to pay for the bread, earned by honest work; and as I pen these lines I am thinking of the thousands who are prevented from earning their "daily bread" by the cruel war. I am thinking of the thousands of helpless and innocent women and children who have had their homes, gardens, and fields despoiled, and of the suffering and hardship such as the world never knew before, through no possible fault of the sufferers. Again and again a prayer wells up in my heart, "How long, O Lord, must this injustice continue? and what are the lessons we are to learn by it? and wherein are thy people remiss that our prayers for peace are not answered?"

Just now, however, I have also something else in mind. The matter of daily bread, while we are at *home*, is a comparatively simple one compared with the problem while traveling. Mrs. Root and I travel but little since we are nearing eighty, except our spring and fall trips to and from our southern home. We usually go on a car made up by elderly people near our Ohio home, and the most of these good people carry their "daily bread" in lunch-baskets. We have done this considerably; but Mrs. Root is usually troubled more or less with car sickness, and at such times she says she cannot bear the sight nor even thought of food carried in a hot car, wrapped up and tied up. For this reason, mostly, we have of late years been going into the dining-car. As a rule we now have excellent service on all our roads, and at reasonable prices when we consider the expense of "spotless linen" and neat and artistic table service. Mrs. Root and I usually each make our selection and then "swap" to some extent for variety. On our last trip at dinner (or "lunch") Mrs. Root was fairly well served; but when my order came of "broiled trout," taken from "special dishes of today," I said to the waiter:

"Where is the bread and potatoes?"

"You didn't order any, sir."

"But, my good sir, are not bread and potatoes included in a 60-cent fish order?"

As he shook his head I said, "So there is a new regulation in regard to 'the high cost

of living,' is there? Here—give me the order." Then I penciled, "Bread, 10 cts.; potatoes, 15 cts.; but while he was gone for them I went over the bill of fare, and found in plain print, "Bread and potatoes included with all meat and fish orders."

As he returned I pointed it out to him.

Now, before any one has time to say, "This is a regular *darkey* trick," I want to tell you that this fellow was so nearly *white* he colored painfully while he took his pencil and marked "free" after the last two items, or at least I supposed he did; but when I came to pay the bill I found the "free" was only opposite the bread, 10 cts. Just one thing more:

Instead of a fair-sized trout for the 60 cts. there was only a small part of a fish, and that by no means first class—nothing like a ten-cent fish delivered in Bradentown.

I have given the full details of the above in order that we may discuss "daily bread" in traveling a little. First a lot of you will say I should have reported him to the head of the dining-car, and may be I should. But who likes to be making "kicks" among a lot of nice people? I once witnessed a "racket" in a restaurant between a waiter and a customer. A third party who sat near asked how much was at stake in the dispute. When told it was only 25 cents he extended a coin and said, "Here! take this and let us have peace." He afterward said he would lose 25 cts. any time rather than get into a "jangle." Perhaps I should add that neither one would accept the quarter, but kept right on disputing. I believe it is pretty universally agreed that where you are only *personally* concerned it is right and proper to "resist not evil," as the dear Savior commanded; but when humanity is likely to suffer it is a different matter. If this waiter is following this as far as he is permitted, day after day, I did wrong in letting it pass.

Another matter comes in here. How could this waiter gain by the transaction? There must be gain for the waiter somewhere or they would not practice it. I have been told that at least on some dining-cars they purchase the supplies and have all they can get out of it. In California I saw a porter or waiter purchase a bag of grapefruit at a station for perhaps five or ten cents each, and afterward serve them at "half a grapefruit, 20 cts." If a customer ordered this, and nothing else, considering the table, napkin, table ware, etc., the price is all

right; but this has nothing to do with evading the printed bill of fare.

Some one else may suggest I should have "tipped" the waiter to start with, and then there would have been no tricks. Very likely; but I don't believe in tips, and a world of good people are back of me.

Mrs. Root suggests he took a look at my *old shoes* that I wear even in traveling, because they are easier, and concluded I was "hayseed," and wouldn't dare say a word, etc.

At this point in my story three things come into my mind. The first is our second text—"Behold, they which are gorgeously appareled, and live delicately, are in kings' courts."

The second is that I am told I was named by my grandmother after the prophet Amos. She was a devout Christian, and, most likely, prayed I might be like him. Commenting on a recent Sunday-school lesson the *Christian Herald* says:

It was good for Amos' preaching that he was a day laborer. Doubtless he often went to bed with the backache. His hands were calloused, and he wore old clothes. But he got far more out of day's labor than day's pay, as Christ's workmen disciples knew how to do.

The third is that, some years ago, the governor of Ohio called on a near relative to help on a commission of three for an important work for the State. He said he was not permitted to offer pay, except necessary expenses. When each of the three sent in items of expense, my relative had among expenses *thirty cents* for dinner in a great city. Said the clerk, "Why, hello! When the State of Ohio is to pay for your dinner, is 30 cents all it costs?"

"I had a nice dinner, and everything I cared for. What did the other two pay for dinner?"

"Only \$1.50 each."

I don't exactly remember; but my impression is the two others had expensive liquors, and let *Ohio* pay the bill.*

As I have said, this was several years ago. May God be praised, things are different now.

Now, dear friends, I have something pleasanter to tell you about "daily bread in traveling." Had our train been on time we would have reached Bradentown Friday night, and Mrs. Root was impatient to get

hold of our cottage that had been vacant since last May. As we had a couple of hours in Jacksonville I was glad of a chance to call at the office of the Florida Anti-saloon League. I first interviewed (from the outside) the saloons on that long central street. The few that had not closed up seemed very quiet, and I saw notices of liquors sold only in "sealed packages." After some delay because the office had been moved, I stood before the open door of the new office. As it is nearly always "summer" in Jacksonville, doors are almost always open. Well, while I stood in the doorway feeling I hardly knew a single soul in that great city, a lady came forward with such a beaming smile I was forced to laugh outright as I said:

"Why, you don't know *me*?"

"Yes, I *do* know *you*," she replied, as she gave me her hand.

"Well, who am I, any way?"

"You are the great beeman of Medina, Ohio."*

Then we had a most friendly chat until the State superintendent, Mr. Crook, came in. He gave me full particulars of the great victory for Florida, and I could not but commend his wisdom when he said he was sure it was best to avoid as far as possible fights or lawsuits with the saloon element. The new law has been declared valid, and there seems a general disposition to submit to it all over the state.

Notwithstanding they told us at the ticket office we would get to Bradentown that night the conductor said we would have to stay in *Tampa* over night. Mrs. Root was disposed to be cross about it when told it would be toward Saturday noon before she could get to work "sweeping down the cobwebs," etc. I assured her it behooved us to wait and see if a kind Providence had not something good in store for us. Whenever I am in *Tampa* I try to call at the Crenshaw Bros.' seed-store to talk over dasheen and other new things for Florida. Last May I stayed so long there I almost had to run for over a mile to catch the train, and Mrs. Root objected to my going there this time for fear it would be Saturday *night* before we got "home."

As we stepped from the train after dark, strangers in a strange city, something impelled me to breathe a little prayer something like this:

"Lord, guide our erring footsteps."

I had planned getting a hotel near the station so I might get up very early and

* It is not the *men* only who, when called upon to do important work for the state, seem to think it the thing to run up a big bill. Recently a woman was sent to Columbus to take charge of some business for a few days. Her bill of expenses included room or rooms at something like \$5.00 a day, and she gave as an excuse that she supposed when our great state called on a woman they expected to give her the best lodging place to be found in the capital city.

* As she had seen me only once a few minutes three years ago it was a little surprising. She had, however, read these Home papers.

get a little time at the seed-store. I found just back of the station I should say fifteen or twenty rigs and runners for the different hotels. From the whole lot I singled one and asked for a nearby hotel. He replied he felt sure the lady would not be pleased with those near by, but that he would take us in his Ford auto to a nice clean place and bring us back by train time, all for a dollar. Mrs. Root suggested he certainly meant a dollar each.

"No, ma'am. I will give you a nice room, clean bed, and bring you back all for *one* dollar."

While we were on the way I ventured:

"I suppose you don't happen to be anywhere near the Crenshaw Seed Co.?"

At this question he and his companion both laughed as he replied:

"Why, my good sir, our hotel is right *over* the Crenshaw establishment, as you will see."

Although Mrs. Root and I have paid as much as \$1.50 *each* for staying over night at a hotel in traveling, I don't think we ever had a pleasanter room. Just outside is a spacious elevated porch or veranda running the whole length of two sides of the great building, and this porch contains a beautiful collection of semi-tropical plants and flowers in tubs and boxes. Just over the desk in the office I saw a notice: "Guests taken to meet any train for 15 cts." I tried to have him take pay, since he had entertained us so handsomely, and at such a low price, but he replied:

"Mr. Root, I *agreed* to take you both ways for the dollar; and what I have agreed to do I have always lived up to so far."

How is that for a hotel-keeper?

A word in closing: Was it not a little funny that, out of the fifteen or twenty runners, I should strike just *this one*? and funnier still (if you will excuse the expression) that his place should just *happen* to be where I particularly wanted to go? I had a nice visit with the manager of the seed-house before train time, and the little Ford got us around in ample time, and Mrs. Root got most of the "cobwebs" down before Sunday. Would it not be well for a lot of us to use my little prayer oftener—"Lord, direct our erring footsteps?" *In all thy ways acknowledge him, and he shall direct thy paths.*

BOOKER T. WASHINGTON

Their works do follow them.—REV. 14:13.

One of the pleasant things about living to a fair old age is the opportunity it affords

of noting the growth and development of the good and great men and women of the age. When the boy Edison started out near my own home I hunted the papers for everything that was said of him. It was the same with Booker T. Washington. Thru some correspondence I was soon in touch with him—sent him a copy of the A B C book, and made his school a life subscription to GLEANINGS. When his first book came out it was my privilege to give it a notice and a price with GLEANINGS that resulted in the sale, I think, of several hundred copies. No one, white or black, who reads the book can well avoid getting a new inspiration for education. Washington started an apiary, and, for aught I know, it is still a part of their institution. One funny thing about it was (and may be *is*), the colored *girls* took mostly to the bees, and we gave a photo, years ago, of the colored-girl beekeepers. I planned to make his institution a visit, but never got round to it, and now it is too late to see the man of whom we have heard so much. Below are two clippings from the Jacksonville *Times-Union* in regard to his recent death. The first is from the governor of Alabama.

HENDERSON LAUDS WASHINGTON.

MONTGOMERY, Ala., Nov. 15.—Governor Charles Henderson today issued the following official statement on the death of Booker T. Washington:

In the death of Booker T. Washington, the colored race has lost its greatest leader. He was a man of unusual force and executive ability, and in many respects rose above the environment of race. In my opinion his efforts toward the development of his race have been of greatest benefit to them and to the entire South. Born a slave, living a life of earnest endeavor, and at his death the chief executive of an institution of nation-wide reputation, created by his own brain and energy, demonstrates to the world the unbounded possibilities open to those whose purpose is to accomplish something and marks him as one of the able men of his time.

CHARLES HENDERSON.

BOOKER WASHINGTON.

Few men in the United States had stronger influence than Booker Washington, and we do not know of any one who used his influence more beneficially. There are ten million negroes in the United States, and the man who represented the best that was in this large number, and who had so much to do with cultivating the best that was in them, was, just from that alone, a power in American life. But Booker Washington had influence far beyond his own race. White men, north and south, held him in the highest honor. He will be greatly missed, but he has taught others who will follow in his footsteps.

We place Booker Washington first among the men of his race. Alexander Dumas probably had a reputation that could be better classed as worldwide. Toussaint L'Ouverture showed ability both as a general and a statesman. Maceo was the most successful general, with the possible exception of Gomez, in the war that resulted in the liberation of Cuba, and Fred Douglass was an orator of great reputation; but we rank Booker Washington above all these. Dumas was not counted as a negro at

all by the French, but he would have been so classed in the United States. He was a quadroon. Fred Douglass was a mulatto. Booker Washington lived with and for his race. Fred Douglass married white women.

Dr. Washington was a messenger of peace and good will between the races in the South. Naturally he was considering his own race, but the good feeling that he taught as necessary to the progress of the blacks operated to the benefit of the whites as well.

Only a few years before Booker Washington began to be known throughout the country no one attempted to lead the negro race except in antagonism to the whites of the South. He had no precedent for his gospel of good will, but he urged the negro to count the southern white man as his best friend. His public life extended through several decades, but not one expression was ever quoted from him that indicated any bitterness. Indeed, his whole life was an exhibition of his confidence in the southern white man, and his efforts with his own race were for their advancement in moral and industrial lines, and in these lines he relied largely on the help of the white man of the South, and his reliance was not misplaced.

Hundreds of thousands of negroes throughout the South will be better and more capable citizens of the communities in which they live on account of Dr. Washington's influence, and not one will be worse. The record is one of which both races in the South should be proud.

The above, at several points, touches on his characteristic humility—I might say "Christlike" humility. At one time in his religious experience he said in substance: "I have finally come to a point where I can thank God that I was born black; for how could I otherwise work for the elevation and development of the race unless I was one of them, and had shared from infancy their toil and hardships?"

Does it not remind one of Moses, and, later on, of Him who left his home in heaven, came down to earth, was "born of woman," became the carpenter's son—"a man of sorrows, and acquainted with grief;" and finally, without complaint, gave up his life on the cross that *we might live*—yes, *more than that—that we, through him, might have "everlasting life"?*

THE MENACE AND ANTHONY COMSTOCK.

On page 911, Nov. 1, I made brief mention of the above; but from the *Sunday School Times* of Nov. 13 I find the *Menace* in three different issues has attacked the life and character of our departed friend. The *Times* answers seven distinct charges at length, and gives proof that every fair-minded reader must accept, not only that the charges are untrue, but that there is not a shadow of truth in any one of them. As an illustration I will just quote No. 5:

5. The *Menace* states that "The least of his offenses was that he permitted his aged parents to die in the almshouse, which is a matter of public record."

In regard to the *truth* of the above, I quote again from the *Times*:

5. The following interesting letter to the Editor from Mr. Comstock's widow, dated October 15, 1915, states the facts as to his parents:

"I am glad to bear testimony to the following facts regarding my late husband, Mr. Anthony Comstock, and his parents.

"His mother, whom he dearly loved, and from whom he learned the principles of pure religion and undefiled, died at her home when he was a boy ten years of age.

"Some years later his father went to England, and little was heard from him for some time. Becoming anxious for his welfare, Mr. Comstock asked a friend to find out about his father's circumstances. He learned that his father had married again, and that four children had been born, and that they were in straitened circumstances.

"Mr. Comstock at once sent money to bring them all over to this country. He took them into his own home and kept them there until I was so near a breakdown that it seemed advisable for him to rent a home for them elsewhere. He continued to support them all, despite his own limited income, until his father died, and then supported his stepmother and her children, assisted somewhat by her eldest son, till her death. One of these sons, Herbert, is a respected business man in Brooklyn. Mr. Comstock's generosity toward this branch of the family was continued until the time of his death."

The writer of the articles in the *Menace* said in his second article: "If you will show me that I am wrong, that any statement of mine is untrue, I will publicly retract and apologize, like any just man and gentleman." The *Sunday School Times* earnestly hopes that *The Menace* will give its many readers the facts as to Mr. Comstock that are here presented.*

Christian people everywhere will be glad to know that the continuance of the great work of the New York Society for the Suppression of Vice has been well provided for. Its offices are at 140 Nassau St., New York. Among its founders, builders, and present officers, co-workers of Mr. Comstock's who knew him intimately and loved and trusted him, appear such names as Robert R. McBurney, Welcome G. Hitchcock, Morris K. Jesup, Samuel Colgate, William E. Dodge, Jr., Cephas Brainerd, Kilian Van Rensselaer, William C. Beecher, and Josiah Strong. In 1912, at the fortieth anniversary of Mr. Comstock as secretary of the society, the officers of the society provided a larger executive force, including an associate secretary, Mr. John S. Sumner, who is now the acting secretary of the society. During the last three years the society has taken advanced steps, and in 1914 had an executive force of seven. The president, Mr. Fred E. Tasker, and one of the vice-presidents, James M. Buckley, D. D., issued a letter last month announcing these facts, and stating: "A few newspapers have expressed the opinion that dealers in bad books, prints, etc., upon learning of the death of Mr. Comstock, will attempt to be more active in their diabolical trades, not realizing that the society has been preparing to meet any emergency that might occur."

Readers of the *Times* may remember a personal word from its publisher, Philip E. Howard, in the issue of October 16, 1915. Mr. Howard, knowing about the hellish products that Comstock had fought for forty years, had once exclaimed to Mr. Comstock,

* My good friends, please notice in the above the gentle kindness and Christian courtesy, under most provoking circumstances, and this has always been characteristic of the *Sunday School Times*. The *Menace* has been coming to me for years, both here and in Medina, although I have never ordered it, or suggested exchange. First and last, it has always seemed to me unchristian.

"How have you managed to stand this sort of thing so long?"

The reply was characteristic.

"Howard," he exclaimed, "I never could have stood it unless the Lord had just kept me through it all. I'd give almost anything to forget the stuff that I have to see. But somehow, you know, I have thought of myself as a man standing at the mouth of a sewer, saving boys and girls from falling in. It's that which has kept me up, and God's power alone can explain how I have been able to keep on."

A LONG LIFE AND A HAPPY LIFE.

I have always been much interested in those who have lived 100 years or more; but it never occurred to me until just now that we might have a symposium made up from the lives of many people who have acquired old age until the following letter came with a clipping from the *Oregonian*:

Mr. Root:—Here is an article from which I thought you might wish to copy an extract.

GEORGE ROGER CHUTE.

Reed College, Portland, Ore., Oct. 30.

Below is the clipping:

HUNDREDS OF AGED MEN AND WOMEN TELL WHAT TO DO AND WHAT TO AVOID IF YOU EXPECT TO APPROACH OR PASS THE CENTURY MARK.

Practically none of those who have lived to a ripe old age have ever indulged in tobacco, alcohol, or stimulants of any kind except in a small degree. There are only a small number of instances where persons after becoming old indulge at all in any stimulants.

Old persons depend very little on medicine and have never done so.

Most of the old persons were very fond of honey, and have always indulged themselves in it.

The old people, practically without exception, had a weakness for honey. But they did not eat much candy. Fruits, dairy products, vegetables, and honey were used mostly as edibles by the old people.

Comparatively few centenarians ever chewed or smoked tobacco or drank alcoholic liquors, and very few have been even moderate users of them.

Let me make a summary from some of the above. First, "get busy," and keep busy. Have something on hand to explore and develop every day of your life—something outdoors if possible. Keep pleasant. Love everybody, even your enemies. "Do good to those that hate you." Sleep before an open window, and have your face so near the side of the bed that the air you have breathed once will be very unlikely to be drawn back with the next breath. Shun stimulants of every sort, and, I might almost say, *medicines* of every sort. Get into the habit of thanking God *every day*, then "rejoice and be glad," even if everybody else looks sour and cross.

"GET BUSY," AND KEEP BUSY.

The following from the *Plain Dealer* voices my sentiments exactly. If this great teeming world does not interest and appeal to you, even if you are over 80, you are to be pitied.

KEEP INTERESTED; THAT'S SIR WILLIAM CROOKES' RULE FOR HEALTH AT 83.

At 83, Sir William Crookes, the scientist, says he does not feel any different from what he was at 40. As to how to keep fit, here is his dictum:

"A good deal of my own present feeling and position is due to the fact that I have always been working tolerably hard and always doing something I take a great interest in, and am enthusiastic about. That, I think, keeps one's mind healthy and in a good state, and tends to keep one going."

SHALL THE UNITED STATES INVEST MILLIONS IN ANTICIPATION OF WAR?

We take the following (by the author of "In His Steps") from the *Christian Herald* of Nov. 24:

PASTOR SHELTON ON PREPAREDNESS; AN OPEN LETTER TO THE PRESIDENT.

President Woodrow Wilson,
Washington, D. C.

Mr. President:—In your speech in New York you are reported as saying: "If men differ with me in this vital matter, I shall ask them to make it clear how far and in what way they are interested in making the permanent interests of the country safe against disturbance."

I am one of those who differ with you very positively on your program of war preparation, and I believe the men of the West generally differ with you. You say, "No thoughtful man feels any panic haste in this matter. The country is not threatened from any quarter." She stands in friendly relation with all the world." If that is true, why all this military program for an enemy we do not possess? In the entire course of your speech you do not mention one single reason for an increased army and navy. You do not name one nation in the world that has any design to threaten or invade our country.

Mr. President, I have lived in the West over twenty-seven years, and within the last year have been in every western state, and faced over one million and a half of the people, and your program of militarism will meet with earnest and intelligent opposition from this part of the country. Much as I would wish, as a citizen who loves his country, to stand by the President in matters of vital concern, I for one cannot and will not uphold you and your advisers in this matter.

Mr. President, you advise men who differ with you "to make clear how far and in what way they are interested in making the permanent interests of the country safe from disturbance."

If the money you and your advisers declare is necessary for military preparation against an enemy you do not name, were to be used in the education of the people and the Christianizing of the world, we could put an end forever to the war-lust of the world. If we took a small part of the people's money which your program will take from the people to buy powder, and put it into a campaign for national prohibition of the liquor traffic, we could prepare our country for a Christian program of conquest over other passions.

If we took the price of one battleship and put it into the building of good roads in one of our states, we could prepare our people for a happier and cleaner and saner life.

If we took a small part of the immense sums your program calls for in the enrichment of munition factories, and spent it in Christianizing Europe after the great war is over, we could once and forever remove even the needless fear of war which exists in this country.

Mr. President, the program you propose to the

people of this country to strengthen the military power of this republic is contrary to the spirit of Christianity. What would Jesus do? Can we imagine him at this crisis in the world's history calling on a nation to spend vast sums preparing itself for war by creating a great army and navy? It is not thinkable. We know what he would do. He would call on the people of this country to give at least a dollar apiece to preach and practice the gospel of justice and brotherhood here at home, and to take what battleships we have and load them with the best of our sons and daughters and send them around the world to evangelize the nation that will be ready for it as never before, and put an end to war by teaching and practicing the principles of the Prince of Peace.

Over against your program, we who differ with you place this program of preparedness. It is more practical than yours. It is the only program which will in the end bring about the brotherhood of man.

With voice and pen and all the influence I possess, I, as one American citizen, will oppose this program of militarism to the full extent of my power, for it represents not the spirit of the Master, the Prince of Peace, but the spirit of the old-world fear and distrust and hate which has kept alive through all the centuries that which the United States does not represent either by her traditions or by her history. After all these centuries of Jesus Christ, we should have learned the lesson which he has been trying to teach us: "They that use the sword shall perish by the sword."

I am very respect fully yours,

CHARLES M. SHELDON,

Central Congregational Church, Topeka, Kan.

At present I am ready to give a hearty amen to every word of the above. I *may* change my mind later, but I hardly think I shall.

HIGH-PRESSURE GARDENING

OUR FLORIDA GARDEN.

We reached our Florida home on Saturday, November 6, just before dinner time. Wesley was on hand to welcome us, as usual, but he had a sorry report to make about the garden. I think I was out in the garden before I even entered the house. Everybody agreed it had been the hottest and driest summer that even the "oldest inhabitant," etc., remembered.

"Why, Wesley, you don't mean our valuable stuff is *all* dead?"

"Pretty much, or ready to die."

Jaboticaba, avocado pears, feterita, dash-
een, our nice bed of strawberries, etc., and, to top it all, the most of the nice lot of young chickens I spent so much time in raising last winter were *stolen*. It did look dubious for a little while; but I have learned from years of experience that it's never best to be in haste to "imagine evil." There were *some* things the dry summer didn't seem to hurt much, and pre-eminently were the great weeds, higher than I could reach, all over my nicely fertilized beds. I soon found *one* jaboticaba was alive; and by getting away the trash I found all three of the avocados (that cost \$2.00 each) had started to sprout near the ground. The feterita, that is so highly recommended to stand drouth, seemed to be affected with some kind of blight; and as the birds had appropriated about all the grain as fast as it had ripened, it made the whole garden look sorry.

Sixty hens were back in their old places and seemed very well pleased with the new growth of plants all over their accustomed runs. After we found they were being stolen, they (the 60 remaining) were moved over to neighbor Rood's, and Wesley

brought them back the day before. The first day I think we got 4 eggs, but with my management they speedily came up to a dozen or 15, and at 45 cents a dozen they are now (November 23) paying their way and a little more.

In one spot where I left a little sickly roselle plant, that I had no idea would live, stood a great tree 10 feet high and 12 feet across, and loaded with "fruit."

"Why, Wesley, do you mean to say that *tree* is the little plant I tried so hard to save?"

"It is the very plant, Mr. Root, and we have a lot more. Just look away down there!"

I could hardly believe my eyes. When almost everything else seemed sick and discouraged my roselle was just booming. We picked a painful and found them not only as good as cranberries, but to *my* notion a *great deal better*. The cranberries have a tough skin that I have always thought indigestible, but nothing of the kind with the roselle. We carried panfuls all around to the neighbors, and they are selling at a pretty good rate up town at 10 cts. per quart. After having them in great plenty at almost every meal for the last two weeks I am thanking God every day for this most luscious and healthful fruit.* Lest you may think roselle is only another of my "freaks," instead of a "great discovery" along the

* When I said at dinner, "Sue, I do believe this roselle makes the most delicious sauce I ever tasted," she replied, "Now, don't you go and put that in print, for you have said it so many times it will sound ridiculous."

Well, this is the day before Thanksgiving, and I am sure it is the right and proper thing to thank God for roselle; and if it *is* true that I discover some new thing to be thankful for almost every day of my life, is it really a bad habit to get into? What do *you*, dear reader, think about it?

line of "daily bread," I quote below from a government bulletin:

ROSELLE: ITS CULTURE AND USES.

The roselle plant is adapted for culture in the tropical and subtropical regions of the United States, and should be especially valuable in southern California, Florida, the tropical islands of the United States, and in the Canal Zone. It is used in the South very much as the cranberry is used in the North, and is especially valuable for the making of jellies.

The name in Florida, "Jamaica sorrel," is evidently an indication that the plant was introduced from Jamaica—at what date the writer has been unable to ascertain—but it was probably not extensively grown in Florida before 1887, as P. W. Reasoner does not refer to it. Harcourt does not speak of it.

In Florida, as in California, those who have tried the roselle have nothing but praise for the plant, and considerable interest in it is manifest; but its culture on a large scale has not yet, to the knowledge of the writer, been undertaken by any one.

The assumption by Royle that the name roselle is a corruption of the French word "oseille" (the equivalent of the English "sorrel") seems very probable. In the evolutionary stages the name has at different times been spelled "rouselle," "rozelle," and "rosella."

The fruit is seen at present in local markets only, and is sold by the quart. Its excellent qualities for making a sauce so closely imitating in flavor the cranberry as to deceive the very elect are not well known to the public or it would be a formidable rival in the South to that fruit, on which transportation charges are necessarily high owing to the great distance it must be transported. The crisp and juicy appearance of the roselle is diminished by being too long in the hands of the dealer, but this does not indicate deterioration of its useful qualities.

SUMMARY.

The roselle is an annual from the Old World tropics.

It is extremely sensitive to frosts, and can at present be grown for its fruit only in tropical and subtropical countries.

Being easily cultivated when the climate is favorable, the roselle should be in the garden of every family; and on account of its excellent qualities for making jellies, jams, etc., it is certain to become an important plant in the manufacture of those products.

The young stems also make good jelly. For such use the plant can be grown almost anywhere in the North or South.

By proper methods of breeding it is possible to obtain strains with larger calyces. Probably earlier-bearing races can also be obtained by careful selection of the earliest-flowering plants.

To save many inquiries as to where to get seed, I am going to do some free advertising by giving the advertisement as I found it in the *Florida Grower*:

Roselle—the lemonade plant, is a wonder; easy to grow; resists drouth; makes the finest jelly; its pods make a drink similar to lemonade. Send 15 cts. for seed and instructions. Mrs. H. G. KAY, Route 1, Box 58, Pasadena, Cal.

My seed came from the above source.

When the weather is very wet there is apt to be trouble with mildew, but the past summer here seems to have just suited it.

The above illustrates that certain things

grow all right during the Florida summers, while there are many things that are sure to be failures.

Later.—When you cut up oranges for the table, put with them stewed roselle sauce, half and half. I like this better than any other combination sauce.

We have now for the first time grapefruit of our own growing; also oranges and tangerines, delicious papayas, pineapples, etc. Although our strawberry-bed died out, we got from neighbor Rood forty plants with a good lot of soil with each plant, and set them out so not a leaf has wilted. This is possible only when you can get good strong plants near by. We brought so much soil with each plant that the forty plants made quite a wheelbarrow load. These plants, with care, will probably be bearing in January. Over an inch of rain, scattered over three days, has made everything brighten up amazingly. We have an abundance of sweet potatoes and yams and Irish potatoes knee-high.

FANCY IRISH POTATOES—A NEW TRICK.

In one of our agricultural periodicals a writer advised thinning out the potatoes in a hill to a single stem, in order to get all large potatoes, evidently forgetting or ignoring that Terry's A B C of Potato Culture has for its main feature "cutting to one eye," and it has been advocated more or less for forty years. The above article advised throwing away the surplus sprouts, but right here comes in the "new trick."

Down here in Florida, and, in fact, in many other places, under some circumstances potatoes must be planted *whole*, because, if they are cut, even in halves, they are much more liable to rot, especially in cold wet weather. This is one reason why the seed potatoes in the market are all small. Well, my neighbor Ault makes a bed of three rows of potatoes. The middle row is planted first all to large potatoes. When these are just coming up he digs them up carefully and cuts them to one or two eyes, and fills the rows on each side. Every potato grows—no missing hills—and the potatoes all go right along almost as if they had never been disturbed, and *no rot*, for a potato never rots after it has started to grow. Is this too much bother? Possibly; but down here where sprouted *seed* potatoes cost \$2.25 *per bushel*, and choice *new* potatoes bring \$2.00 *per bushel*, the saving of seed and having a perfect stand is quite a figure. You will see by our book "What to Do and How to be Happy," etc., that I did the same thing by starting potatoes in the greenhouse *toward forty years ago*.

CASSAVA AND THE MANIOCA OF SOUTH AFRICA

On page 471, June 1, and page 559, July 1, you will see that our good friend Thompson sent me some canes or cuttings which were planted here about May 1. I have before mentioned the wonderful growth of

cassava; but this manioc, while it looks exactly like our cassava, has a much larger leaf, a brighter green, and seems in every way a more hardy and thrifty plant than our Florida cassava. We have not yet tested it for table use; but it looks now as if it might prove an acquisition.

TEMPERANCE

"KANSAS HAS MORE INSANE IN 'STATE' HOSPITALS THAN WISCONSIN."

We clip the following from the *Christian Observer*:

Thirty-two counties in Kansas have abandoned their public farms. According to the latest report of the State Board of Control, 898 paupers were being cared for at county institutions.

The prison rate for the entire country is 121.4 per 100,000 of the population. In Kansas it is 91.1. North Dakota, another prohibition state, does better than that, with 63 per 100,000 inhabitants.

The per-capita liquor consumption in the whole country is \$21. In Kansas it is \$3.04. Kansas thus saves forty million dollars every year directly. The indirect gain is not subject to computation, but is certainly greater still.

Illiteracy is the lowest in the country except in one other state.

Forty-eight counties out of 105 did not send a prisoner to the penitentiary last year.

LIBERTY IN LYING.

It is well known to those who have looked into the matter that no dependence can be placed upon figures and illustrations used by the liquor people. Their literary methods well illustrate the truth of the familiar saying that figures do not lie, but liars will figure.

A sample of its method may be seen in the use made of statistics. The liquor interests have claimed that Kansas has more insane patients in its state hospitals than Wisconsin in proportion to population. That is true; but they omit to say that Wisconsin has, especially in its more populous counties, a system of county hospitals for the insane.

Do the liquor interests really believe that the open saloon would be a good thing for Kansas? Most emphatically they do not. I saw a liquor advertisement recently which claimed that the whisky advertised brings "health, wealth, and happiness." Does any one believe that? Do the distillers of that whisky themselves believe it?

When those opposed to prohibition point to the fact that, in the matter of laws protecting working women, Kansas is behind some other states, do they mean we should infer that the best way to protect the working women of Kansas is to go back to the open saloon?

When they seek, unsuccessfully, to prove that Kansas suffers by comparison with Wisconsin in the number of insane, do they seriously propose the open saloon as a cure for insanity?

Booze to Butter in Washington," from which we clip the closing paragraphs:

It is a well-known fact that the Bellingham brewery has specialized on pasteurizing and bottling milk, making cheese and ice cream since the town went dry. That the plant has been doing this on a losing scale is absurd to contemplate. Capital does not engage in turning out food products for fun, any more than it turns out beer for the humor there may be in it.

In founding a creamery establishment, buildings are the first essential. Steam-generating plants and refrigerating apparatus are necessary. An office equipment must be had. Teams and wagons and automobile trucks are needed. All these things are to be had in the brewery rendered useless through temperance legislation. The items represent the bulk of the cost in creamery construction. Therefore it is not plain why breweries cannot be profitably converted into creameries, especially when the surrounding country gives a portion, or all, of its attention to dairying. By diverting the money usually spent to advertise beer into channels that will develop dairying, the ultimate profit for the creamery should equal or exceed the profit derived from liquors. All that is needed is to get the milk-cans moving as fast as the beer-kegs moved under the old order of things.

Cows offer consolation to those few farmers who are displeased because of the dryness of their localities because of temperance legislation. Hop and barley growers can depend on cows and other live stock to consume all they raise, and a market via the brewery need not worry them. No people on earth is going to legislate creameries and dairies out of business. Therefore, to feel safe and secure, why not go in for something that will last, and not depend on the whims of humanity? Cows have saved many a farm from mortgage proceedings. They will save the breweries from the scrap-heap when the time comes, and that time is rapidly approaching. That's why the Bellingham Bay and Olympia brewing plants are meeting the situation now, before it is fully upon them, by getting into the milk, cheese, and butter business.

Dear friends of temperance, some of us have wondered why our earnest prayers have not been answered; but is it not a greater miracle to see breweries furnishing milk, butter, and cheese than to see "swords beaten into ploughshares, and spears into pruning-hooks"?

"FROM BOOZE TO BUTTER"—"COWS OFFER CONSOLATION."

Kimball's Dairy Farmer for Nov. 1 contains a splendid article headed "From

"GOD'S KINGDOM COMING."

No doubt you will be glad to know our county (Bell) went dry Nov. 13, 1915, by a majority of 505. I know A. I. Root will rejoice with us.

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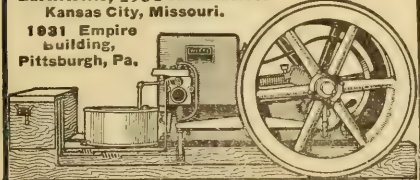
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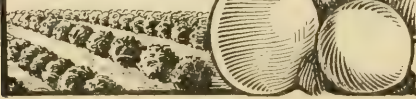
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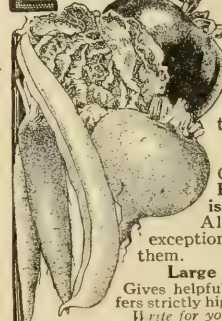
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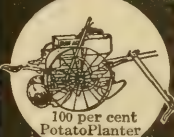
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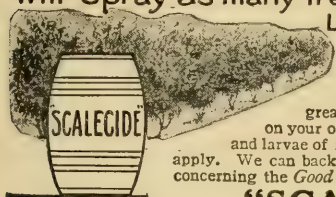
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Strawberries and all Small Fruit Plants mean big and quick profits for you at small outlay of money.

We are headquarters for Summer and Fall Bearing Strawberry Plants, Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, Asparagus, etc. Catalog free.

L. J. FARMER, Box 608, Pulaski, New York

Free for Testing

A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETERITA to plant a rod square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with THE GARDNER NURSERY COMPANY Box 749, Osage, Iowa.



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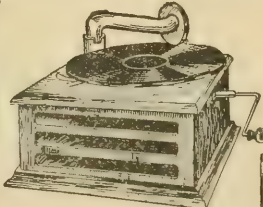
Incubator 402,000 in use. Get the whole story told by the **Championship Winners** in my big free book, **"Hatching Facts."** With book comes full description of incubator and brooder—my 10-year money-back guaranty—low prices—full particulars—and my **\$1300.00 Gold Offers.** Learn how I paid one user \$156, another \$50, many from \$45 down. Write me today for **Free Book.** Jim Rohan, Pres.

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1

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We send it on **FREE TRIAL** with Records. If you buy, pay \$1.00 a week and own a Phonograph for **LESS THAN HALF** price of equally good machines. Thousands used.

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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. **Big Profits.** Write for Catalog. **THE BEST LIGHT CO.**
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Finest published; 144 pages, 210 pretty pictures and beautiful color plates. Complete instructions how to breed, hatch, feed by improved methods, describes our best Poultry Farm with 53 pure-bred varieties, including **Runner Ducks.** Lowest price list on fowls, eggs, incubators, sprouters, etc. This great 50c book mailed for only 5 cents. **Berry's Poultry Farm, Box 97, Clarinda, Iowa**



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Free—New 100-page 22nd Annual Edition. Fine pure bred chickens, ducks, geese and turkeys—Northern raised, hardy, beautiful. Fowls, Eggs and Incubators, low prices. America's greatest poultry farm. Write today for **Free Book.**

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Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Pure-bred heaviest laying strains. Fowls, Eggs and Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free.

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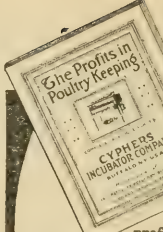



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Our big, illustrated, 1916 Year-Book—"Profits in Poultry Keeping"—will help you make more money with fowls. Tells how to raise chicks, get more eggs and make larger profits with less work. Learn about **Cyphers-Built Incubators** Sold at Low Prices. Quality unequalled. Big hatches and a guarantee that protects you; backed by 20 years of leadership. We want you to have a copy of this great Guide for Poultry Raisers. Write for it today—free.

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BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Don't delay writing for our Big 100-page free catalog and circular giving full particulars. We can save you money on best tested, guaranteed, scarified seed. Sample Free. Write today.

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Plant STRAWBERRIES

We ship plants safely to any part of the United States. Have the **VERY BEST** for farm or GARDEN CULTURE. Also a complete line of Raspberry, Blackberry, Gooseberry, Currant, Grapes. Acres of Everbearing Strawberry and Raspberry plants, just what you want. Greatest money-maker before the American public. Descriptive catalog free. Write now.

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Garden, Field, or Farm
Increasing Demand; Large Profits
100 Root Sets, with Full Information, \$1
Write for list of our \$1 Friend Makers, consisting of all kinds of fruit trees, berries, and roses. Honey wanted in payment for nursery stock.

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writes Engesser of Oregon. Hundreds are making big money with the new plateless **DAYDARK POST CARD MACHINE** 3 cards a minute, complete—3 size cards. Experience unnecessary. Write for particulars and **FREE TRIAL** offer now.

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Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Light amber, of good body and flavor; 120 lbs. in case at 6c; sample 10c. H. C. LEE, Brooksville, Ky.

FOR SALE.—Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb.
MARTIN CARSMOE, Ruthven, Iowa.

Clover-heartsease-goldenrod blend. Light amber, best quality, prices right. Sample, 10 cts.
E. S. MILLER, Valparaiso, Ind.

FOR SALE.—Choice-grade well-ripened clover honey, good grade for bottling; put up in 60-lb. cans.
GEO. M. SOWARBY, Cato, N. Y.

FOR SALE.—10,000 lbs. white-clover extracted honey in new 60-lb. net tin cans, 2 in a case, for shipment, sample free. Address
D. R. TOWNSEND, Northstar, Mich.

Mesquite and catclaw extracted honey, extra heavy body and exquisite flavor; f. o. b. Cherry Creek, Ariz.; 120 lbs. for \$10.00. Sample, 10 cts. Address BELL APIARIES, Camp Verde, Ariz.

Amber honey, 7½ cts. per lb.; sage honey, 8½; clover honey, 10 cts. per lb. in 60-lb. cans. White comb honey, 12 to 16 cts., box by the case.
I. J. STRINGHAM, 105 Park Place, New York.

Finest clover honey, 8½ cts.; buckwheat, 8, in cases of two 60-lb. cans; 6-lb. can postpaid in second zone, \$1.00. Satisfaction guaranteed.
EARL RULISON, Rt. 1, Amsterdam, N. Y.

Clover, basswood, amber, and buckwheat honey in 60-lb. can and 165-lb. kegs at 7 to 9 cts.; also in 3, 5, and 10 pound friction-top pails. State kind and quantity wanted. C. B. HOWARD, Geneva, N. Y.

Special prices on a quantity of near-water-white white-clover extracted honey in new cans and cases. Money cannot buy better honey than this. A free sample will convince you.
E. D. TOWNSEND, Northstar, Mich.

Fine new-crop clover and basswood honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Car honey, half extra-fine comb, half extracted, alfalfa, or car extracted. Small lots at \$8.00 per case of two 5-gal. cans; cases of 6 10-lb. pails, \$5.00; 12 5-lb. pails, \$5.40; all f. o. b. here.
E. F. ATWATER CO., Meridian, Ida.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-pound cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Amber extracted honey, well-ripened and mild-flavored, 6 cts. Honey-dew honey for baking or bee-food (cheaper than sugar) 5 cts. by the case; ten cases 4½; 25-case lots, 4 cts. per pound; two sixty-pound cans to the case; also have some fall comb honey for \$2.25 to \$2.75 per case of 24 sections.
H. G. QUIRIN, Bellevue, Ohio.

FOR SALE.—Finest quality of white-clover-basswood blend extracted honey in new 60-lb. cans. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

RASPBERRY HONEY, all left on the hives until thoroughly ripened. It is thick, rich, and delicious. This honey is put up in new 60-lb. tin cans. We have it in two grades—pure raspberry and raspberry blended with just enough buckwheat honey to color it. Price, the pure raspberry, \$6.00 a can; the raspberry and buckwheat blended, \$5.50 a can. In one-gallon cans by express, raspberry, \$1.50 a can; raspberry and buckwheat blended, \$1.40 a can. Sample of either kind by mail for 10 cts., which may be applied on an order for honey.

ELMER HUTCHINSON, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—White comb honey.
D. H. WELCH, Racine, Wis.

WANTED.—Bulk comb, section, and extracted honey; state price and submit sample.
J. E. HARRIS, Morristown, Tenn.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.
SUPERIOR HONEY CO., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

HONEY LABELS.—All styles. Catalog with prices free.
EASTERN LABEL CO., Clintonville, Ct.

HONEY LABELS.—New designs. Sample free.
LIBERTY PUB. CO., Sta. D, box 4E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

FOR SALE.—70 T. tin supers; used one season; bargain if sold at once.
G. LEON ALLEN, Rt. 2, Ulster, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Double-walled two-story beehives with super, metal roofs; bargains at \$1.00 each.
L. F. HOWDEN, Fillmore, N. Y.

SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog.
W. N. SCARFF, New Carlisle, Ohio.

Good second-hand 60-pound cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash.
C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE or on shares, two apiaries in Mississippi. One of the best locations in U. S. for early queens, increase, and honey.
N. GUTE,
2363 Fulton St., Toledo, Ohio.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your orders.
R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

PATENTS

PATENTS THAT PAY. \$600,812.00 clients made. Protect your idea! Send date. Advice and two wonderful Guide Books free. Highest references.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

Poultry Paper, 44 125-page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

RANOCAS WHITE LEGHORN COCKERELS.—Will mate this season only cockerels of better than 200-egg blood. Have for sale heavy utility cockerels, 1915 hatch, Million Egg Farm stock, at two to five dollars each. Write EDGECLIFFE SPECIALTY FARM, Portland, Michigan.

REAL ESTATE

SOUTHERN LANDS are low in price, but high in productive value, make two to four crops a year, and give largest profits in grain, vegetables, fruits, live stock and dairying. Unsurpassed climate, good markets. Publications on request. M. V. RICHARDS, Commissioner, Room 27, Southern Railway, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—To exchange 3¼x4 Korona camera for extractor. J. L. SPEER, 6155 Green St., Chicago, Ill.

Will exchange very fine Premo Special camera, 6½ x 8½, with Zeiss anastigmat lens, for extracted clover honey. A. SHIMONEK, Wilber, Neb.

WANTED.—To exchange lath mill and bolter, 24-inch attrition feed-grinder, Economist steam-boiler, 12 H.P., for machinery to make honey-sections or engine lathe. GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discount.

C. E. SHRIVER, Boise, Idaho.

WANTED.—Partner with \$300 to \$500 to expend in bee business. Have 125 dovetailed patent hives; will run 100 to 150 colonies this season; have six-frame automatic reversible extractor, gas engine, saws, cutting, dado heads, etc. Beginner would be apprentice to my years of experience and methods of getting the honey crop. Crop of 1914, 50 colonies, was 3200 lbs. of section honey. Will board party. Partner can have his money back at lapse of two years; will give (he working with me) beginner ¼ of honey crop or 1-3 if experienced apary man. Don't waste postage unless you are in earnest; but if wishing to get in and learn a nice good business, write. References given.

JUDSON A. JONES, Continental, Ohio.

MISCELLANEOUS

Choice Santa Clara Valley Dried Fruit from grower to consumer at following prices, f. o. b. Saratoga: Prunes, 10-lb. sack, \$1.10; apricots, 10-lb. sack, \$1.35. Maximum express rate on dried fruit, 4 cts. per pound in U. S. except points served *only* by Southern Express Co. Mr. E. R. Root has visited our ranch, recommends our product, and vouches for our reliability. HERMAN A. CLARK, Saratoga, Santa Clara Co., Cal.

BEEES AND QUEENS

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later. N. FOREHAND, Ft. Deposit, Ala.

FOR SALE.—50 colonies of bees in good 8-frame standard hives, in good condition, at \$3 per colony. MRS. L. H. HUFFMAN, Rt. 3, Nashua, Iowa.

FOR SALE, or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list.

J. L. LEATH, Corinth, Miss.

Golden Italian queens that produce golden bees; the brightest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE CHEAP.—80 colonies of Italian bees in DeLand, Fla. Moore stock, 8 and 10 fr. hives; 42 empty supers, full depth; 60 shallow ext. supers; wax-press, extractor, uncapping-tank, smokers, knives, foundation, shipping-cases, etc., for \$300 cash. A rare bargain. Speak quick. Address 38392 "A BEEKEEPER," care of GLEANINGS, Medina, Ohio.

FOR SALE.—400 colonies Moore strain bees in good location. Combs built on full sheets of foundation. Everything in first class shape. Principal source of honey is alfalfa. Located in the Rio Grande Valley, under the largest irrigation project in the United States. THE CROWN APIARIES, Mesilla Park, N. M.

QUEENS.—Italians exclusively; golden or leather-colored. One select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

M. C. Berry & Co., Successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list.
M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen \$1.25 after March 20. No reduction for less than 50. 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with $\frac{1}{4}$ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

HELP WANTED

WANTED.—Two men to work with bees the coming season; little experience necessary; full particulars by first letter. B. B. COGSHALL, Groton, N. Y.

WANTED.—Young man to work with bees season of 1916. No tobacco-user need apply; or will sell half interest to right party with small payment down. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

WANTED.—Energetic young man (preferably married) who has had experience with bees, and understands queen-rearing, to take charge of apiary of 200 colonies with opportunity to increase to 400. Steady employment on ranch when bees do not require attention; must have farm experience. Salary and percentage of honey. F. L. HOGUE, Lompoc, Cal.

WANTED.—For large and growing business, farm-raised man of good habits, experienced in extracted honey production, and willing to help at light farming when not busy with apicultural work. Good permanent position for right party. One acquainted with autos preferred. Particulars on application. Address 36602 "OUTYARDS," Gleanings in Bee Culture, Medina, Ohio.

WANTED.—Boy or young man who has had some experience with bees to work as helper with bees when needed, but most of the time to work in green-houses and gardens of a large company. Excellent opportunity for bright active boy of good character who wants chance to learn and work up. Permanent position if satisfactory. Boy from small town or country preferred. State age and experience.
W. B. DAVIS Co., Aurora, Ill.

SITUATIONS WANTED

Married man, age 37, wants position as apiarist; has handled bees since childhood. Understands either comb or extracted production, and queen-rearing in full colony.

J. C. ADAMS, 20th and Rose, Detroit, Mich.

Experienced queen-breeder wants work for the season of 1916 with some reliable firm. Prefer raising queens for the market, but will also handle colonies for honey production. Best of references furnished. State wages and full particulars when writing.
N. C. JENSEN, Albion, Neb.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00 return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.
H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Imported, three-banded Italian bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Convention Notices

The Washington State Beekeepers' Association will hold its 22d annual convention on Feb. 9, 10, 1916, in the court-house, North Yakima. We are looking forward to having a good time. It is one month later than usual, owing to an unavoidable delay.
J. B. RAMAGE, Pres.

North Yakima, Wash., Dec. 30.

MASSACHUSETTS CONVENTION.

The annual Massachusetts convention of beekeepers for 1916 will be held at Amherst, Mass., March 14 to 16, inclusive. This will form the conclusion of the winter school of beekeeping, but the program of the convention is not fully planned. A number of prominent authorities will appear upon the program.

SHORT COURSE FOR MICHIGAN BEEKEEPERS.

The Michigan Agricultural College, East Lansing, Michigan, announces a "Beekeeper's Week," March 13 to 18 inclusive. It is hoped that a large number of beekeepers will take advantage of this new course, so that it may become a regular feature. There are no fees, and no age limit. Women are as welcome as the men. All beekeepers desiring to obtain more knowledge of beekeeping should apply to the Department of Entomology, East Lansing, Michigan, for further particulars and program.

APICULTURE GIVEN AT THE MICHIGAN AGRICULTURAL COLLEGE.

1. A five-credit course, two lectures and one lab., elective to seniors only, with prerequisite entomology. Given during the fall term. Practice and theory.

2. Two lectures a week, for eight weeks, given to the Horticultural short-course students in January and February.

3. Two periods a day, lectures and practical, during the month of February, given to the Agricultural short-course students.

4. Three lectures a day during "Round-up Week," Feb. 27, to March 4. These will be more general, and suitable for the farmer who has a few colonies, and wishes to care for them properly.

5. A one-week course in beekeeping, given during the third week in March, known as "Beekeepers' Week." Outside speakers will address the students in this course, and it will be made as complete as possible in the time allowed. March 13 to 18, 1916.

6. A long course for the students of the senior years is being considered, and announcements may be made later.

F. ERIC MILLEN, Instructor in Beekeeping and State Inspector of Apiaries.

ON THE BOOKSHELF

Happy Hollow Farm

Unless one is prepared to become enthusiastic about farming perhaps he had better let alone "Happy Hollow Farm," by William R. Lighton. Mr. Lighton is the author of "Letters of an Old Farmer to His Son," which was reviewed recently in these col-

umns. He was formerly an Omaha newspaper man, and went into the farming business down among the Ozarks in Arkansas. This is the story of his experience.

The fact that the author was a writer by profession made the telling of the story easy, but he could never have imagined the buoyant enthusiasm that comes from a life earned from the soil. It is not a manual of farming, yet a book of vast practical usefulness, common sense, and advice, and delightful gaiety.

The man who hopes some day to own a farm of his own will read it, of course. The man who already owns a farm will see new joy in his work, and will more greatly appreciate his own usefulness by living over again with Mr. Lighton his adventures in freedom.

"Happy Hollow Farm," William R. Lighton, The George H. Doran Co., New York; 318 pages, 12 illustrations, \$1.25 net.



Established 1885

It will pay you to get our 64-page catalog and early-order discount

Beekeepers' Supplies

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.



Beehives and Supplies

at factory prices; satisfaction guaranteed or your money refunded.

Please write us today for our catalog and special discount to new customers

W. H. FREEMAN, PEEBLES, O.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much. And I didn't know the man very well either. So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, altho I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "100 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1909 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear thru the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1621 Court St., Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ontario.



FREE

Dr. Kellogg's Great Book

Constipation

How to Fight It

A Limited Offer

For the next ten days we shall give a copy of Dr. Kellogg's remarkable book "Constipation—How to Fight It," with each one year subscription sent us for GOOD HEALTH.

GOOD HEALTH is the magazine which tells you how to keep from being sick and brings to you, in usable form, each month, facts about the very latest scientific methods of increasing your strength and energy, and protecting and preserving your health.

GOOD HEALTH teaches you how to save strength—how to make every ounce of energy count—how to ward off disease—how to eat for health—and how to breathe, exercise, rest, sleep, bathe, and otherwise care for yourself so you may keep young and vigorous for many years.

GOOD HEALTH also has a Question-box Department thru which its subscribers may secure **free** answers to as many health questions as they wish to ask. If your questions are personal, and demand immediate attention, they are answered at once direct by letter. If you ask about matters of general interest, not requiring immediate attention, answers are printed in the Question Box of the magazine. All such questions are answered by the medical specialists who help to edit GOOD HEALTH. The Editor-in-chief of GOOD HEALTH is

Dr. John Harvey Kellogg, M. D., LL. D.

For nearly forty years, Dr. Kellogg has been Superintendent of the Battle Creek Sanitarium. Here he has observed, treated, and prescribed for thousands of cases, including every ill to which human flesh is heir. Dr. Kellogg, therefore, writes from the standpoint of experience. He deals with facts—**not theory**.

GOOD HEALTH also numbers among its contributors the foremost medical minds of the country, including Dr. Winfield Scott Hall, of Northwestern University, Dr. J. N. Hurty, of the Indiana State Board of Health, Dr. L. A. DeVilbiss, of the Kansas State Board of Health, Dr. Luther H. Gulick, of the Board of Education of New York City, Prof. Irving Fisher, Ph.D., of Yale University, and many others equally well known.

GOOD HEALTH is not a magazine of fads and fancies. It teaches only good, sound, common sense. Any one who reads English intelligently can understand and follow GOOD HEALTH teachings.

Think of it! All these tremendous resources of health information at your command for only \$2.00 a year. And, in addition, you get Dr. Kellogg's famous book "Constipation" absolutely free. "Constipation" is not a large book—only a little over 100 pages—but what it teaches makes it worth its weight in gold. It is yours **free** with a year's subscription to GOOD HEALTH for only \$2.00.

Use the coupon. Don't postpone acting on this opportunity to add a valuable book to your library, and, thru GOOD HEALTH to keep in touch with original sources of latest and best health information.

This offer is good for *ten days only*. To get the benefit of it, you must act at once. Fill out the coupon and hail it **now**.

GOOD FOR TEN DAYS ONLY.

Good Health Publishing Co.,
1001 W. Main St., Battle Creek, Michigan.

Gentlemen:

I attach \$2.00 (send check, money order, bank draft, or a \$2.00 bill) for which enter my name as a subscriber to GOOD HEALTH for one year, and send me, as per your offer, a copy of Dr. Kellogg's book—"Constipation—How to Fight It," which I understand will be mailed to me postpaid and absolutely free.

Name

Street and No.

City State

Canadian subscribers add 12 cts. for extra postage. Subscribers in other foreign countries add 24 cts. for extra postage.

"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

A LOOK INTO 1916

Gleanings in Bee Culture

Long-headed men of affairs are enthusiastic over returning prosperity in business. Are you as a practical beekeeper prepared to take your share of larger profits? GLEANINGS IN BEE CULTURE for 1916 will emphasize practical sales methods for honey producers. Two numbers will be given over entirely to plans for pushing sales of honey. Experienced beekeepers look for a good year all around, and these special numbers will make it even more profitable.

In each of the numbers the respective subject will be given thorough treatment with articles, editorials, and departmental comment. The combined force of many men's experience will be focused upon these practical topics. As usual, we have selected the subjects to be featured from suggestions made by readers themselves.

Special Numbers for 1916

March 1—Buildings

Every beekeeper has or looks forward to having a workshop and extracting house. The first March number will discuss and illustrate plans, arrangements, and details of buildings which have proved satisfactory. If you intend to build you'll need this information. Interior equipment and devices for saving labor will receive attention.

May 1—Out-apiaries

This will interest the practical bee-man of large operations. There will be special articles on the let-alone plan of beekeeping; extensive or intensive—which? Look for pertinent matter on doing without detailed records for each colony, securing a location, arranging rentals, agreements, etc.—these and other important details of success on a large scale.

June 1—Wax Production

We found a man in Arizona who says it pays him to run his colonies for wax

alone. High freights take the profit from honey. The values in wax production, methods of extracting, rendering from old combs, marketing, and the uses of wax will get a hearing in June.

July 1—Advertising Honey

Talk about honey! That's the only way to sell it. What to say and what not to say will be the meat of this issue. Exhibits at fairs and food shows will be illustrated, newspaper and direct-by-mail advertising will be described, and other suggestions aired. Can you wait until July?

August 1—Marketing Honey

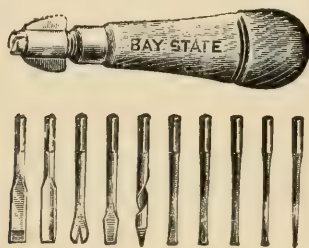
After advertising come the sales. Writers with something to say will discuss working up a local trade or selling thru wholesales or jobbers. You will not be kept in the dark about problems of transportation, trade marks, and construction of packages. Of course, co-operation, national and local, will have attention.

Are These not Worth Your Subscription?

Gleanings in Bee Culture, Medina, Ohio

Bay State Awl and Tool Set

Ten Tools



Tempered and polished tool steel blades ; cutting tools sharpened. Polished hollow maple handle, with screw cap to contain blades. Polished steel screw chuck, jaws, and ferrule.

Length of Blade $2\frac{5}{8}$ inches ; length of handle, $5\frac{3}{4}$ inches ; total length with blade attached, $7\frac{3}{4}$ inches. Diameter at chuck, 11-16 inch.

This is just the kind of a set to take with one for emergencies when it is inconvenient to carry so many tools, as they all fit in the handle, and the tool in that way occupies little space but can readily be converted into ten different tools. Nothing handier for a pocket kit.

Bay State Awl and Tool Set

a Premium for NEW Subscriptions to "Gleanings"

Send us THREE NEW SUBSCRIPTIONS TO GLEANINGS
for six months each (25 cts. each), and one of these
Awl and Tool Sets will be mailed to you
postpaid as premium.

Canadian postage 15 cts. extra for each subscription.

Gleanings in Bee Culture, Medina, Ohio



THE IDEAL BEE-VEIL

Ofentimes when out in the yard working with the bees one stoops over to pick out a frame, and, as usual, bees keep buzzing around his head, watching for a chance to sting. The cloth veil which is often used sticks to the face when one bends over, and gives the bees an opportunity to sting. The IDEAL BEE-VEIL is constructed of cloth or wire, there being a cord at the top of the veil used to pull the cloth around the crown of the hat. The lower part also has a cord which fastens around the waist. The wire on the IDEAL veil does not strike the face, and prevents the bees from stinging. It can be readily seen that a veil of this kind has the cloth veil far outdistanced for comfort and utility. Sparks from the smoker do not burn holes in the IDEALS as in the netting veil.

The veil is manufactured by us, and is recognized by the best and largest beekeepers as the most practical veil on the market.

Red Catalog, postpaid. "Simplified Beekeeping," postpaid.
Dealers Everywhere.

W. T. Falconer Mfg. Co. . . . Falconer, N. Y.

Where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COLO.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and evenly capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front section in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

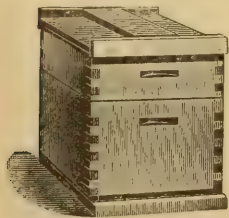
Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight. All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



Early-order Discounts will
Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

INDIANAPOLIS.—This market is well supplied with honey, especially comb honey. With the approach of holidays the market usually shows a lack of vitality. No. 1 choice white comb is selling at \$3.75 to \$4.00 per case; No. 2 white comb, \$3.50 per case. Extracted honey is bringing 9 to 11 cts. We are offering 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, Dec. 18. WALTER S. POWDER.

ALBANY, SCHENECTADY.—There is but very little demand, and we look for a quiet market during January. The usual retrenchment, after the rush and gift-buying during the holidays may be expected. Lower prices will not induce buying, as merchants are taking account of stock, and add only what is necessary.

CHARLES MACCULLOUGH.

Albany, Schenectady, Dec. 22.

CHICAGO.—Trade in honey is quiet. Retailers having loaded up for the holiday season, there will not be much of a call before the middle of the coming month. Prices are without material change, ranging at 15 to 16 for the two highest grades; 12 to 13 for the ambers. Light-weight sections are preferred when well attached to the wood. White extracted ranges from 7 to 9, according to kind and condition; but very little of it is selling at over 8 cts. in a small way. Large lots can be bought at lower prices. Amber grades range at from 5 to 6, with some high-flavored and desirable lots at 7 cts. per lb. Beeswax brings 28 to 30.

Chicago, Ill., Dec. 18. R. A. BURNETT & CO.

ZANESVILLE.—Considering the proximity of the holidays, when usually the demand for honey begins to slacken, the market condition is fairly satisfactory, and the better grades are moving pretty well. Prices remain about as per previous quotations. Choice to fancy grades sell in single-case lots at \$4.00 to \$4.25; lighter weight and inferior grades correspondingly lower, with usual discount to the jobbing trade. Best grades of extracted are selling at 9 to 11, according to quantity, with the supply about balancing the demand. Twenty-eight cents cash, thirty in trade, are ruling prices for wax as received first-hand from producers.

Zanesville, Dec. 20.

E. W. PEIRCE.

Honey reports continued on page 5.

Special Extra....Automobile Bargain

We offer our 4-cylinder 35-horse-power covered-top delivery automobile in perfect order. Cost \$1500; will sell for 750. Capacity 1500 lbs. Just the thing for a farmer, dairyman, or grocery delivery. If interested, write for more particulars, as the party buying will get a bargain.

The Fred W. Muth Co., 204 Walnut Street, Cincinnati, Ohio
"The Busy Bee Men"

NOW IS THE TIME

To order your supplies, and thus
have every thing in readiness for
the spring besides saving 3 per cent

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the bee-keeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

The Prospect for 1916 is Very Good

It would be wise to be one of the beekeepers who are now ordering supplies for another season; besides, there is a discount for January of 3 per cent and February of 2 per cent. Send us a list of goods required and we shall be glad to quote you prices if you have no catalog. Catalog will be sent only on request. Our stock for season of 1916 is now here, and we can fill orders pretty promptly. We carry a full line here at Syracuse; and by ordering from here you will save time and freight. Goods will arrive in better condition on short hauls. Better make out a list before you forget it.

F. A. Salisbury, Syracuse, N. Y.

1631 West Genesee Street

Gleanings in Bee Culture

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\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Honey reports continued from page 2.

ST. LOUIS.—There is no change in the honey market since our last quotations. The supply of both comb and extracted honey, while not large is quite sufficient for the present demand. We are still quoting white comb honey in 24 sections from \$3.50 to \$3.75; amber, \$2.75 to \$3.00; dark and inferior, less. Extracted honey in 60-lb. cans from 6 to 9, and in barrels from 5½ to 6½, according to quality. Beeswax is firm at 28½ for pure; inferior and impure, less.

R. HARTMANN PRODUCE CO.
St. Louis, Dec. 20.

Kind Words

GLEANINGS READ BY PRISON INMATES.

Our exchange list has grown to such an extent we were sure it needed revising, so we sent out a circular letter and a card to all exchanges on our list of which we were at all uncertain. All they have to do if they wish the exchange continued is to return the card we have sent, indicating that they are interested in GLEANINGS.

The card below is one which came from the *Star of Hope*, the paper published by the prisoners of Sing Sing Prison.

STAR OF HOPE, Inmates Sing Sing Prison, 354 Hunter St., Ossining, N. Y.

After the editorial office is done with the magazine we loan it to inmates interested in the subject; and after they have read it we send it successively to Auburn Prison, Great Meadow Prison, and Clinton Prison, where it is loaned to interested inmates until it is worn to shreds.

H. HUFFMAN BROWNE, Editor-in-Chief.

MAPLE SUGAR, BEES, POTATOES, AND "AX-HELVE."

A. I. Root's talks about maple syrup and sugar in *Our Homes* made me think it would, perhaps, be interesting to you to see how we make syrup and sugar each spring. I have made maple syrup about 40 springs out of my life of 58 years, and know it is just as healthy to make it as it is to eat it. I certainly enjoy both. My quarter-acre yielded 74 bushels of nice potatoes. This kind of potato was raised from seed of the Early Rose. They are the earliest potato I ever had. The bees did quite well this year in spite of cool rainy weather throughout the summer. I extracted 150 gallons, and had about 300 lbs. of comb honey from 35 swarms, spring count.

One of my side lines is hand-shaved ax-helves. This line goes well with beekeeping in my locality. One winter I made 82 dozen for the Wisconsin Timber and Land Co., of Mattoon. There are hundreds of acres of cutover lands in this locality where raspberries abound.

Mattoon, Wis.

A. V. POLLOCK.

KIND WORD FROM A SOUTH AMERICAN MISSIONARY.

Dear Bro. Root:—Your tract, "How to be Happy when People Abuse You," came to me with some sample tracts from California recently. I received a great blessing from the tract.

I should like to say I have known you since I was a little boy, as I grew up in Chippewa Lake, attended school in Medina, and saw your plant grow to the proportions it is now; and I know it is because you were true to God.

I learned to dance, play cards, smoke, etc., and would not yield my life to the Lord, although he called me many times.

On account of smoking I became so nervous I could not sleep at night—made one or two trips to Chippewa to end my life by my own hand. I was so nervous I could not do so, the Lord holding me because of prayer. I was saved May 10, 1900, since which time, excepting the first year, I have been preaching the gospel, six years of the time in South America.

The Lord has wonderfully blessed me, and given me many souls in this time, as my calling is that of an evangelist.

Let me say I always love to read your bee journal for the good religious articles you put in it; and I pray that God may wonderfully bless your last days.

EARL W. CLARK.

Washington, D. C., Oct. 23.

BANKING BY MAIL AT 4%

The Ideal Investment

For safety, convenience, unalterable value and ready accessibility no form of investment is superior to a Savings Account at 4 per cent compound interest in this strong bank.

Moreover, you can begin with a very small amount—as low as \$1—and steadily build up your surplus by adding from time to time any amount that suits your convenience.

Deposits may be sent by registered letter, draft, check, or money order.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A. T. SPITZER, Pres.
E. R. ROOT, Vice-Pres.
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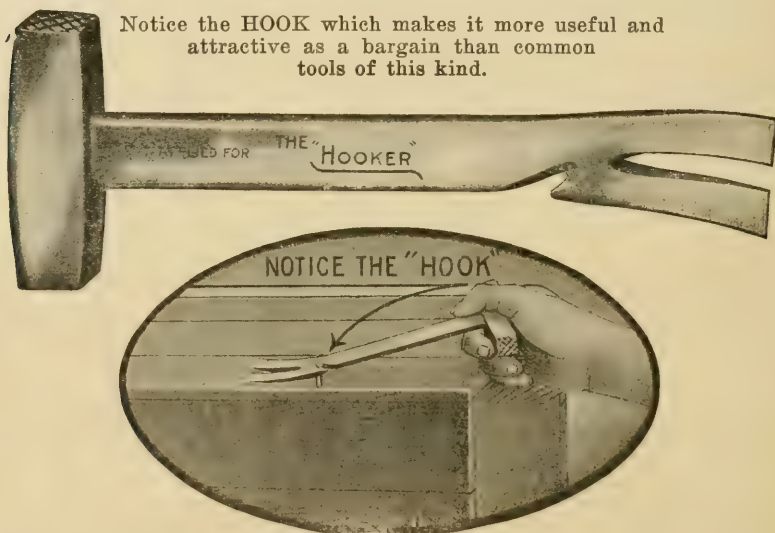
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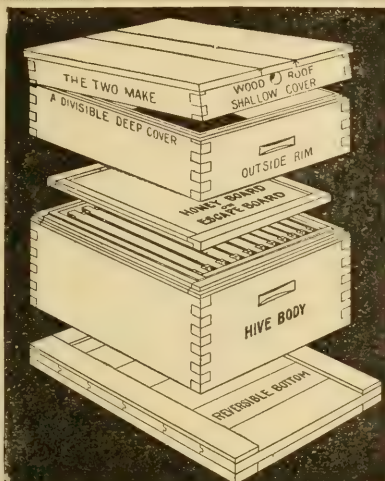
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I also have some nice grade Vermont
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Candy for WINTER STORES

Why not be sure your bees have enough for winter by
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This is the best season of the year for buying
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28 cts. cash and 30 cts. in exchange for goods for average
beeswax delivered to Lansing. Turn your beeswax into
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We allow you 30 cents a pound in trade for good average beeswax delivered here.

Finest extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

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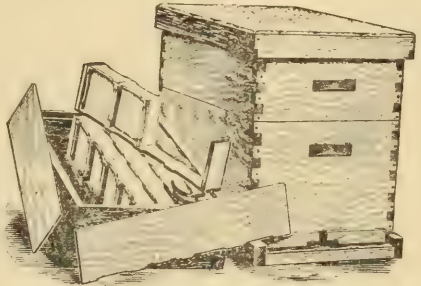
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"Next Door to Everything"

reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business, distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

January cash orders are subject to a special discount of 3 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St.

Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
Bird Department
in the
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Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

Many have stated that the 1915 Lewis Catalog was by far the best bee supply catalog ever issued.

The New Lewis 1916 Catalog is still better than the 1915 edition particularly in the illustrations, most of which will be found to be entirely new and of the finest work the engraver is able to produce in this line. As in previous editions, all descriptions and lists of prices are comprehensive and very plain.

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G. B. Lewis Company . . Manufacturers of
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Early-order Discounts on Dadant's FOUNDATION

Send us a list of the bee-supplies and foundation you will need for 1916, and we will gladly quote you our best prices. It will pay you to buy early.

BEESWAX.—We buy beeswax the year round and pay highest cash and trade prices. Light yellow wax from cappings is especially wanted. Your **BEESWAX** worked into foundation at moderate rates.

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Old combs, cappings, and slumgum rendered on shares. Send for our terms. We will get all the wax and save you a "mussy" job.

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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department
H. H. ROOT, Managing Editor

E. R. ROOT, Editor

J. T. CALVERT, Business Manager.
A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JANUARY 15, 1916

NO. 2

EDITORIAL

Good Wintering at Medina

TODAY, Jan. 12, the bees at Medina are having a splendid flight. The temperature is up to 70, and the bees are flying as if they were out on a gala day in summer. Bees are wintering equally well in double-walled single hives and in the big quadruple winter cases. In some colonies brood-rearing has started. Notwithstanding the bees have been flying strong, scarcely a spot of dysentery can be found on the hives. Indications at the present time point to excellent wintering; and the government weather maps seem to indicate that our locality is no exception.

The Michigan Short Course

AFTER trying for two years to put thru his project of a short course for Michigan beekeepers, Prof. F. Eric Millen, of East Lansing, Mich., has succeeded and now announces a "Beekeepers' Week," March 13 to March 18, inclusive.

This is a new course, and is designed to meet the needs of a large number of beekeepers who have never had an opportunity to become acquainted with the newer and more profitable systems of management.

Seven or eight lectures will be given daily and expert beekeepers, including Mr. Morley Pettit, Provincial Apiarist, Ontario, will address the class. While it will not be possible to cover the whole field of beekeeping the fundamental principals will be thoroughly discussed. There are no fees and no age limit. The women are as welcome as the men. For particulars inquire of the Department of Entomology, East Lansing, Mich.; also Convention Notices elsewhere.

Bee-escapes

IN this issue there is some evidence showing the value of the double Porter escape, or two single escapes to a board. It is a little dangerous to put a single escape on a big colony during hot weather. We have

had one disastrous experience, and numerous reports showing that a single exit may become clogged. When bees are confined on a hot day in a super with no means of escape, there is danger, on account of the excessive heat generated, that the combs and honey will be melted down, and the bees smothered.

For these reasons the double-exit escape is coming more and more to the front. It is altogether unlikely that both exits will become clogged at the same time. And even if one should do so, the other opening will release the bees.

Quite a number are now favoring the ventilated escape-board having one or two Porter escapes in connection with the wire screen. The object of this is to provide ventilation, and keep the honey as warm as possible so it will extract more readily. But as E. F. Atwater, in this issue, says, the combs will not be as warm as when the bees themselves are on them. Herein the old method of shaking and brushing combs has a little the advantage.

Honey Bread—Not so you Could Notice it

OUT in Kansas they have a food commissioner who will not tolerate misrepresentation of a food by name or trademark, fanciful or otherwise. Butternut Bread, made in Chicago, when it comes into Kansas has to bear labels expressly stating that butternuts are not used in its manufacture.

Then the commissioner came to the "Honey Bread" people in Kansas City who had to confess that they use no honey in making up the dough. The only thing to do was to admit it on the label or find another name.

The decision of the food commissioner in the case of the Butternut Bread is rather curious, especially as it does not seem that any one would believe that butternuts actually are used in it; but the laughter at his "Honey Bread" decision was due to general

ignorance on the part of the public that honey is often an important ingredient in bread. The commissioner was right.

But then, isn't it to be regretted that honey is not more generally known as a delicious addition to a bread recipe? If it had been, the commissioner's action would not have been almost the national joke that it became.

The United Honey-producers' Association

THIS is an organization to "support a nation-wide system of teaching the food value of honey, and its uses in cooking, in the domestic-science departments of our public schools. It was started in Indiana, with B. F. Kindig, deputy inspector of Indiana, president, and George W. Williams, of Redkey, Ind., is secretary and treasurer. A vice-president will be chosen later from among the members of each state organization. These collectively will make up the national board of control, to determine the policies to be carried out. The dues are \$1.00 a year, plus one cent per colony above the first hundred colonies.

Mr. Williams, the secretary, is editor and owner of the *Booster*, a monthly journal devoted exclusively to the interests of honey-producers, but primarily to boost the price and sale of honey. We have already noticed this paper—see pages 431 and 739. *The Booster* appears to be still boosting, not only to increase the consumption of honey, but to boost the United Honey-producers of America.

It is announced that the new organization will make some of the "old fossils who have been running around in a ring for 25 years open their eyes when they wake up some of these mornings and see the United Honey-producers doing the things that they have been dreaming and talk, talk, talking about for a quarter of a century, and doing it in a way that will make them cuss themselves for not seeing how to do themselves."

It is indeed time that we were doing something besides talking and passing resolutions. The publishers of *GLEANINGS* have on their own initiative started a vigorous campaign of advertising honey. We would not dare to say how much we have expended; but if one knows what it costs to advertise in papers like the *Ladies' Home Journal*, he will know that the figures run clear up into the thousands. We gladly join with the United Honey-producers of America, and sincerely hope that they will succeed in putting honey in every family in the United States. They are going at it

right by getting the food value of honey before the domestic-science departments of our public schools.

Winter Weather up to January 3. How Bees are Wintering

WE have been going over our government maps, which we have been receiving since last spring, and find some rather interesting data concerning the weather over the United States as a whole. In our locality the winter started in rather early. We should have preferred to have two weeks more of warm weather before packing our bees; but it set in cold along toward the middle of November, and by December 1 it had set in for real winter.

A comparison of the weather maps for the last two months reveals the fact that it has been rather cold in the southern states, while on Dec. 28 10 degrees Fahr. starts north of Lake Huron, in Canada, continues thru Michigan, thru Chicago, to Springfield, Ill., thru Kansas, clear down south as far as Roswell, N. M., a little north of El Paso, and running a little north between Phoenix and Flagstaff, Arizona. Then the line turns sharply to the east, going thru Leadville, passing directly north up into Canada.

On different days it is really surprising to see how cold it has been in some of the southern states. Some of the cold was in a mere pocket covering a very small area in one state. For instance, on Dec. 27 there was a pocket of cold in southwest Utah near Modena. There was another pocket of zero weather around Rapid City. It was down to 30 and even 20 in Texas, and 30 in southern Georgia. On the day following the entire map was changed. The temperature went rapidly upward, but it went down below freezing in northern Florida.

Private letters from Florida indicate that it has been quite cold in that state, and the maps show it. While it has been rather cold in the southern states, the mercury has not been very low relatively in the northern states. In the lake regions, and directly south, it has seldom been lower than 30 degrees, with an occasional pocket of about 20 degrees. Apparently it has not been very cold in Canada; but occasionally we find some zero weather, and a little below zero; but these low marks are at least 100 miles north of Lake Superior.

There has been a large amount of wind; and when the temperature is not so very low there is apt to be a great deal more air stirring than when it is down to about zero. A temperature down to freezing, with a high wind, especially when it goes down to

20, is about as hard on unprotected bees as a zero atmosphere without wind. However, when colonies are well packed and screened by windbreaks, as they always ought to be, these high winds do no particular harm.

Taking the winter over the northern states for two months, so far it has been favorable for bees well packed and screened by windbreaks, but it has been a little hard on bees in single-walled hives out in the open.

It has been noted many times before that when a winter starts in cool and cold rather early as it did this winter that there is no likelihood of there being any severe cold during mid-winter. When, however, the fall is very mild and warm, and the weather continues clear up to Christmas, severe cold is likely to follow, as it did three years ago today, Jan. 5, 1913.

The weather maps also show that the lines of heat and cold this winter pay very little attention to the parallel lines of latitude. While it is true that the cold does not remain long in the southern states, yet this winter, on occasion, it has been just as cold in the extreme southern states as in the northern. For instance, on Jan. 3 it was 30 on the coast of Maine, and the same temperature in Texas, and a few miles north of Phoenix, Arizona; and Yuma, for instance, the hottest spot in the United States, had a temperature as low as 40. In southern Colorado it was down to zero.

According to the map there has not been a large amount of snow. There has been more precipitation in the southern states. There seems, however, to have been considerable snowfall in the regions just north of us in Canada.

The New or Old Bee-disease; Isle of Wight Disease and Bee Paralysis Probably the Same

ELSEWHERE in this issue, page 69, we publish a symposium of reports in response to our request on page 922 for a statement of experience detailing the amount of destruction caused by the new disease, its exact symptoms, and a cure, if any. We have received a good many responses, only a part of which we are able to publish; but those we do give are representative of some of those we do not publish.

The general evidence so far submitted would seem to lead to the belief that the Isle of Wight, or new disease, and the old bee paralysis of bygone days, of Florida and California, are one and the same. The differences, if any, we verily believe, can be

charged to environment and seasonal conditions. Let us compare the symptoms of bee paralysis, and then those of the malady that has shown itself in the Northwest and in the Mississippi Valley.

SYMPTOMS OF BEE PARALYSIS.

The disease seems to be confined mainly to the bees themselves. The first sign of it is a few black shiny bees, often with swollen abdomens, crawling around aimlessly in front of the hive entrances. A few scattered ones will be found in the hive. In the more advanced stages the whole colony seems to be demoralized, and the individuals will apparently be struggling against each other, and tugging at their own bodies, as if in distress. It is very seldom that we find bee paralysis in its advanced stages in the northern states; and when it does occur, not more than one or two colonies having it can be found in the yard.

Some twenty years ago bee paralysis was very destructive in Florida and California. The general symptoms were about the same as we have reported, except that whole apiaries wasted away. But in later years it seems to have worn itself out, both in Florida and California.

A few years ago (1904) we began to hear about the Isle of Wight disease that spread all over England. At the time, it was observed that it was quite like our bee paralysis, and was so reported in GLEANINGS. Last summer we began to get reports of a similar if not the same malady, that was killing bees by the thousands in Oregon and Washington, and we heard of it also down in the Mississippi Valley and in parts of Texas. In some localities it appeared to be very serious. The reported symptoms did not, however, exactly tally with those of bee paralysis. The colonies simply wasted away until the brood began to die. The symptoms in the Northwest part of the country were about the same as in Isle of Wight disease in England. The bees would be seen crawling out in bunches around the entrances of the hives, not always shiny and black, apparently nothing the matter with them except that when they attempted to fly they could not. Some bees would lie on their backs. All of them showed more or less trembling of legs and wings. Some reported that the bees were black and shiny, and others said that they did see it. In this respect the malady in the Northwest was not quite the same as bee paralysis, and the difference between the two diseases could be accounted for by environment because there were several reasons that pointed to the same disease. Let us see what the points of similarity are:

1. As in the case of bee paralysis, so in the disease of the Northwest, some strains of bees are more resistant than others. Sometimes a change of queens brings about relief and often a cure.

2. Finely powdered sulphur sprinkled on the bees brought about relief and cure with the old bee paralysis of Florida and California, and it also seemed to afford relief and cure to the bees affected in the Northwest, down the Mississippi Valley, and in Texas.

3. An excess of moisture seems to favor both bee paralysis and Isle of Wight disease. Either would be more prevalent during a wet season such as we had last summer than during a dry one. In Great Britain, Florida, and in Washington and Oregon, there is an excess of moisture almost every season at certain times of the year. But the humidity is greater some seasons than others, and the virulence of the disease varies with the humidity present.

It will be noticed by the reports in the symposium that the disease apparently disappears when settled dry weather comes on. While we do not know positively, it would seem that a fungus of some sort is the disturbing cause. Whether the bees gather it with the pollen has not been proven. Fungus seems to develop better in a humid atmosphere than in a dry one.

The summer of 1915, especially the fore part of it, was the dampest and wettest we have known for years, and we have heard more of the disease similar to bee paralysis than we have heard before for many years. Moreover, it seems to follow in those portions of the country where there is a great amount of humidity; and it disappears just as soon as dry or settled warm weather comes on. It is quite clearly established that a moist climate, or an occasional wet season favors the propagation of this particular malady, whether we call it Isle of Wight disease or paralysis.

That it is destructive—fearfully so—when the conditions are right, is abundantly proven. One of the remedies is finely powdered sulphur blown over the combs and bees. But the only satisfactory relief is the drying-up of the weather. On this point, perhaps our British cousins may not agree with us; but we doubt very much whether they really know what a dry climate is. What to them would be dry would be only foggy to us.

Another fact seems to be that this new disease apparently wears itself out. After it has had a run for two or three years it will disappear. Twenty years ago Mr. O.

O. Poppleton reported it as very serious. When Dr. Phillips later on sent Mr. Demuth down to investigate he could find nothing of it. When we asked Mr. Poppleton what had become of it he said it had simply disappeared.

We have proved out to our own satisfaction that some strains of bees, especially some around Portland, will resist this Isle of Wight disease or bee paralysis much better than some other strains. The same disease has been rampant in Australia, and it was a very serious trouble there until the beekeepers developed a strain of Italians that were immune to it.

It will be remembered that Mr. F. R. Buehne, of Tooberae, Australia, imported some strains of yellow Italians from America. Everywhere these strains were introduced, bee paralysis broke out and made no end of trouble. He could not hold the disease in check until he had eliminated the imported strains entirely, and went back to his own stock that seemed to be immune.

From all we have so far learned we can draw no positive conclusions, yet the remedy seems to be to introduce strains that are immune to bee paralysis as far as possible in those parts of the country where the disease has held sway or where there is an excess of humidity, and use sulphur. The disease is sometimes imported thru the queen, because years ago there was no such thing as bee paralysis; and when a territory is once cleaned up, humidity alone will not bring it on.

Mr. Poppleton, besides having discovered that powdered sulphur will give relief to an affected colony, also learned that the combs and the bees themselves are not a source of infection to a healthy colony; but the treatment that he found to be the most effective was to form as many nuclei from strong healthy stocks as there were colonies to be treated. As soon as the nuclei had young laying queens he gave to each, as fast as possible, one or two frames of old capped brood from each of the paralytic colonies. He continued to give them brood in this way until the brood from affected colonies was used up.

At the present time we are not assuming that any theory we have advanced, to the effect that the two diseases are one and the same, are absolute and final. We desire to get more reports in order that we may make further comparison; but it is our belief, but only a belief, that the slight differences between the Isle of Wight disease and the old-fashioned bee paralysis can be easily explained by environment and the condition of the season.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



BULK comb honey looks good when those Texas chaps talk about it; but why has it never gone in the North? We might know more about it if some enthusiast who has made it a success in the South should move north and try it on our markets.

"CLOVER pollen seems to be the only pollen which is covered with honey, and the honey sealed over," says G. M. Doolittle, p. 927. That's new to me; but I've no doubt he is correct, as usual, at least for clover regions. But I do know that in pollen left over from the previous year I do not recall that I've ever seen any but dark brown, like clover pollen. I suspect there's more pollen from clover than from all other plants combined; and the other pollens being used as fast as gathered, clover is the only kind left to be sealed.

So much is said about Italians for European foul brood that there is danger a beginner may think all he has to do is to keep Italians and defy the European enemy. Italians have the disease as well as others, only they are a *help* in its treatment. [You are exactly right, Dr. Miller; but the tendency of late among beekeepers is to think that an immune strain of Italians is all that is required. In the first place, no one can know when a strain is immune; and in the second place, when they are immune, additional treatment is necessary.—Ed.]

YE Editor guesses bees go for nectar as far as they can see, p. 965. My guess is smell. No matter how slight the breeze, bees always approach a basswood on the lee side, although they can *see* as well from either side. Then I'm skeptical about their seeing a patch of clover two miles away. [You may be right. One thing in favor of your theory is that an obstruction would shut off an odor-carrying breeze the same as it would shut off a view of the thing itself. The suggestion has been made that the bee has a telescopic sight as well as a microscopic. The small simple eyes may be telescopic, and the compound or big eyes on each side of the head may be for near or close work.—Ed.]

ACCORDING to what you say, Mr. Editor, p. 1011, the average beekeeper of large experience leaves the dummy out of either eight or ten frame hives. Well, as I there said, "I'm not entirely certain it isn't an improvement." Let's figure: With $1\frac{3}{8}$

spacing, and combs $\frac{7}{8}$ thick where occupied with brood there will be $\frac{1}{2}$ inch between combs, and a space of $\frac{13}{16}$ at each side. Accumulation of glue will in time take up $\frac{1}{4}$ inch, as you say, and then the space at each side will be $\frac{11}{16}$. If $\frac{8}{16}$ is the right space for bees between combs, $\frac{11}{16}$ would seem none too much for the outside blanket of bees. I think I'll try leaving out the dummy. How about ten-frame hives $14\frac{1}{4}$ inches wide? When everything is new there will be just $\frac{1}{2}$ inch at each side. With an accumulation of $\frac{1}{4}$ inch of glue that space will be $\frac{3}{8}$, and with more glue it will be still less. Seems that outside space should be more than the inside ones, rather than less.

"I AM satisfied that fifty degrees is too high a temperature for successful wintering," converses Doolittle, p. 1015. Likely true in most cellars, where the air is close. But it doesn't seem to do much harm in my cellar, where the door is more or less open, and air about as pure as outdoors. At any rate, the temperature often stands at 50 or more, and the bees winter well. I wonder if purity of air isn't more important than temperature. [This question of temperature, as you say, is one that is largely dependent on the amount of fresh air. When there is no ventilation, or but very little, the nearer the thermometer shows 45 Fahr., the better. But with sufficient ventilation the temperature may go up to 50 or even higher without any serious results. In our best indoor wintering-cellar the temperature ranges from 45 to 65—most of the time about 50. We have a dry cellar with a large amount of ventilation. The bees in this cellar would scarcely fly out on the cellar bottom; and on Feb. 15 we were often able to go across the floor without stepping on a bee.]

If anything we prefer a temperature of 50, and ventilation, to a temperature of 40 to 45 with *little* ventilation. We have proved, to our own satisfaction at least, that with a perfectly pure air the temperature may go up to 60 and stay there for days; but, of course, we prefer it about 50. At 50 to 55 the bees begin breeding. This does no harm toward the latter part of winter, but it is too much of a good thing during the fore part or middle of winter. We have looked into a good many bee-cellars; and the conditions we have found all over the North are borne out by our own experience in our own cellar with plenty of ventilation.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Bees were flying freely about here as late as Nov. 28, and even working on fall-blooming dandelions.

It seems to me I never heard so much piping or quahking of queens as I have this fall.

On page 986, Dec. 1, first column, the strange statement is made that, if a colony of bees has European foul brood, it should "be broken up or *disturbed*." *Destroyed* would sound better.

Most of our bees are being wintered, as usual, out of doors. But we put 108 colonies in the cellar Nov. 30 and Dec. 1. The temperature since they were put in has ranged at 50 degrees, and bees are as quiet as one could ask.

Directions are given, page 739, Sept. 15, as to where to set bees in a city lot so as not to cause trouble. This is well; but it is equally important to be careful what kind of bees you set out in a city lot. The average black colony will make ten times the trouble an average Italian colony will. Italian bees rarely molest unless molested.

Mr. Byer inquires, page 970, Dec. 1, if clover out of season yields much honey. That has been our experience this year. It was also true fifty years ago this season. Moses Quinby stated, more than fifty years ago, that in some years it would yield nearly all summer, but as a rule neither white nor alsike clover seems to yield much honey after July.

In reply to Dr. Miller's question, page 789, Oct. 1, I will say that when our bees have sections filled with foundation within $\frac{1}{4}$ inch of the bottom, and on a good colony, and honey coming in freely, we have little trouble about the combs being built down to the bottom; but without these conditions foundation fastened to the bottom appeared to be gnawed away, and not as well secured as we had expected.

The statement is made, page 797, Oct. 1, that "just as water goes direct into the blood, so does honey, leaving no residue. It is assimilated at once, and changed to energy." I believe this fact of vastly greater

importance than we have been accustomed to think. Dr. Miller calls attention to this on page 800. If, when wearied or exhausted from any cause, we take a tablespoonful of honey dissolved in a cup of warm water, we may find ourselves in much better condition later than if we were to take solid food.

I went out a few weeks ago with my right-hand man to look over a hundred colonies of bees. Suspicious that robbing might develop, he brought along a hand sprayer and a little kerosene. Sure enough, we had fairly got started when robbing began. A little spray of kerosene soon put the robbers to flight; and by the use of it, spraying a few hives ahead of where we were at work we were able to work with as little trouble from robbers as in midsummer when honey is most abundant. It is better than carbolic acid—cheaper, and less trouble—best thing I ever tried.

That bulletin No. 695, "The Fundamental Principles of Good Wintering," by Dr. E. F. Phillips, is sound and timely, both as to packing, protection from wind, and strength of colonies. But where little honey is gathered after July we have many colonies that are not strong. What about them? Shall we break them up or unite them that all may be strong? We have found that such winter very well if the brood-chamber is reduced to three, four, or five combs, and well packed, notwithstanding the severity of our northern New England winters. A small room does not require as large a stove to keep it warm as a large one.

Dr. Miller inquires, page 835, Oct. 15, how many swarms I lose by running in virgin queens to full colonies. Well, doctor, "I don't know." We sometimes lose a swarm when a young queen is given a full colony, but I believe not nearly so often as where a queen-cell is given them, or one is left in a hive after it has cast a swarm. We run these virgins in mostly to hives that have prepared to swarm, and from which we have removed the old queen; and the secret of success seems to be to introduce a virgin just after the swarming fever has subsided, or in two weeks from the time they would naturally have swarmed if left to themselves. If much earlier they may swarm; and if very much later they may not accept such a queen.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



VALUES IN STORE FOR 1916.

We are promised a lot of good things in GLEANINGS during the current year, with special numbers on special topics. Just such treats as the special numbers have proven to be in the past are enjoyed by the readers. This is shown by the appreciation of them so heartily expressed in favor of each special issue that has been published. And we cannot but hope that the forthcoming numbers will be better than ever. Even those beekeepers who are more successful in any one or all of the subjects to be treated during this year, who are progressive enough to realize that one never gets too old to learn, welcome them. The less experienced should not fail to get them.

THE DAY OF THE SPECIALIST.

Just as in many other lines of work and business the day of the specialist beekeeper is coming. It absolutely must come before beekeeping will be put on a sound business basis. The trouble at the present time is that there are too many beekeepers of the smaller type who are a detriment to the industry. We have long heard of the great harm they do in marketing their product at ruinously low prices, and too often offering honey of such inferior quality. Both of these alone are detrimental.

Some of our larger producers have had to suffer considerably as a consequence of the operations of these "one-horse beekeepers," as they are commonly termed. The lower prices set by them affect the larger producer quite materially when the difference of even one cent a pound less on a large output may mean a loss of the profits over cost of production. A difference of two cents a pound on an output of 50,000 pounds of honey means a loss of the neat little sum of \$1000, otherwise a nice little income. Even half that sum, occasioned by a difference of only one cent a pound, may mean the loss of what might have been the actual income for the year.

Here in Texas at the present time, as for a number of years, we are handicapped by those beekeepers who produce a lot of honey and lack the ability to market it properly. The result is that they keep the honey on hand a long time. It granulates more or less, and they begin to offer it at a ridiculously low price. Then it arrives in granulated condition and proves a drug on the market, the dealer not buying any better

honey until he has eventually gotten rid of "the stuff I have on hand." This state of affairs is especially bad with a product like bulk comb honey.

But there is no reason why this should give any ground for objection to the production of this commodity, even for the winter and following spring trade; for we have certainly solved that problem. Even at this time of the year we are filling orders for bulk comb honey; and from the repeat orders we get every week or so from a large number of our customers we have proof enough that it sells like "hot cakes." But we are equipped to pack the beautiful white comb honey in the containers and fill up with properly heated extracted honey, as we get orders for it. This enables us to get out an absolutely fresh "pack" that appeals to the customer, and of which there is nothing nicer during the cold-weather months. That is the reason for its ready sale and the cause of the many repeated orders. It is altogether a different product from that sent out by too many of our beekeepers when they happen to get an order which they fill with the partly granulated old pack honey.

This is only one illustration to show the advantage the specialist has over the beekeeper who is not able to equip himself properly to meet these demands. There are quite a number of others. I am rather optimistic in the belief that the day is here when the larger beekeepers will have to equip themselves better, and when the number of smaller producing beekeepers will begin to wane. Of course, this need not necessarily include the small beekeeper who keeps only a few colonies for his own use, and gets perhaps a little honey to sell when the crop is more favorable.

GREAT NEED OF ORGANIZATION.

Have the Texas beekeepers lost interest, or why is it that there is so little stir among them of late years? There was a time when we boasted of eight beekeepers' associations of considerable size, whereas there is not one good-sized beekeepers' association in Texas today. My twelve years' connection as secretary-treasurer of the Texas Beekeepers' Association and similar connections of late years gave me an opportunity to keep in close touch with matters of this kind.

Why has this change come about? Is it not time that we wake up and begin to stir

at least as we used to, if we cannot do better? Is it not much more necessary to take a deeper interest in apicultural matters today than years ago? And is it not time that some of us were making a start in this direction? In my conversations recently with other beekeepers I found that even the most common subjects of the day could not be discussed because of the fact that "the other fellow" did not any longer subscribe for any of the bee journals, and consequently had not read the subjects mentioned in any of them. This is a sad state of affairs and needs remedying. It is difficult in this age of wide-awakeness and organized effort to strive alone, each individual for himself. It will not only prove lonesome wandering but expensive in the end.

It is true that our more experienced beekeepers have not fallen away from the usual order of things, and many new ones have embarked along the right lines. I am not casting any reflection on any of them; but I often boil over with enthusiasm when I see the great things that could be accomplished. At the same time, it is just as often that there is a boiling over of just the very opposite of enthusiasm. The possession of either of these will prompt outbursts of the above nature.

It is also true that we have a larger number of county beekeepers' associations than we have ever had before; but their effort is too local in nature, and not far-reaching enough. We need bigger organizations to undertake greater fields of work than we now have; and it is to be hoped that the coming year will bring us better results in this direction.

* * *

NEW SIZES OF BULK-COMB-HONEY PACKAGES.

Texas has enjoyed a standard of various sizes of packages for bulk comb honey for many years. The regular two 60-lb. square cans to a case, with eight-inch screw cap openings to the can, headed the list. Next in order came the case of ten 12-lb. friction-top pails, followed by ten 6-lb. pails to a case, and another of twenty 3-lb. cans. Before these became standard sizes for the Texas product there was a large assortment of other sizes, and much confusion. This standardization of packages relieved the situation, and resulted in a uniformity of price lists made out in the order of packages as given above.

During the last two years there has been a demand for our bulk comb honey in the regular sizes of syrup-pails, the 5 and 10 lb. friction-top pails. This demand has increased to such an extent that these sizes

have almost supplanted the standard honey sizes. It was still necessary, however, to carry all sizes in stock in order to be able to fill orders for any of the older sizes as well as the new. This created again the same confusion that previously obtained—too many different sizes of packages necessitating the carrying in stock of a much larger supply of cans than necessary. It also brought about all sorts of combinations of orders, and too frequently delay on account of one or the other size in stock becoming exhausted.

An effort will be made by a number of the foremost beekeepers and honey-dealers to eliminate the unnecessary sizes for the 1916 season. It is a fact that the special sizes of honey-pails of 12 lbs. and 6 lbs. are higher in cost of manufacture in comparison to the 10-lb. and 5-lb. syrup-pails. The former require a special size of tin in their making, while the latter are a standard for syrups, made in enormous quantities; and if adopted for honey in place of the former they can be obtained at much less cost to the beekeeper.

Recently I took the matter up with some of our jobbers who handle enormous quantities of honey. Their immediate answer was in favor of the change. One of these concerns preferred, however, before deciding definitely, to investigate, and consequently dictated a letter to a number of their traveling honey-salesmen as follows:

The following are some of the replies received:

HONEY.

Dear Sir:—With opening of next spring campaign on honey, try to sell everything in 10-lb. and 5-lb. buckets, packed, say, 6/10 and 12/5 to the case.

Please advise on bottom of this letter if this will be satisfactory to your trade.

SALES DEPARTMENT.

"The 6/10 and 12/5 are the best sellers; will want a few 2/60's."

"In my opinion the above will be much better than the old pack."

"Yes, they prefer it."

"Yes, O. K."

"This will be O. K. I like it better."

"Trade likes these sizes much better."

"I think this will suit the majority of the trade, but believe we should have some 3-lb. pails also."

This information is exceedingly valuable. It comes from men who know how to sell honey, and who know the trade and what it wants. The result will be that the honey-dealers will demand and the producers will have to furnish in the new schedule of sizes. These will undoubtedly be the two 60-lb. square cans to the case; six 10-lb. friction-top, twelve 5-lb. friction-top pails, and possibly the retaining of the twenty 3-lb. cans or the adoption of the smaller 2½-lb. syrup size in their place also.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



PRESERVING FRAMES OF COMB.

"Having sold quite a share of my bees I have on hand more combs than I am liable to use before August, 1916. I feel that it would be better to preserve these combs than to melt them for wax

and then buy foundation to replace them when I want combs again, as most of them are nice and straight. But during the spring and summer months I have had poor success in keeping such combs from the larva of the wax-moth. How may this difficulty be overcome?"

Straight all-worker comb, built true in frames, is of greater value by far than the wax will bring which can be gotten from them, to say nothing about the cost of rendering. Experienced beekeepers think it very profitable to purchase comb foundation at the rate of ten cents for enough to fill a Langstroth frame, besides the cost of transporting it and the labor of putting it into the frames. So I have considered such L. frames of comb worth at least twelve cents each. But the wax that can be gotten from such a comb will not bring, as a rule, more than five or six cents. Therefore I have always made it a point to preserve all the spare combs I had for future use.

Combs on which the bees die during winter and early spring can be kept by placing them over strong colonies during the latter part of May and June, so that the bees, but not the queen, can have access to them. In this way they can be kept for any increase that may be desired, and used for colonies set apart for extracted honey. This plan has also an advantage by way of keeping down the swarming fever liable to occur with strong colonies too early, and will more often than otherwise stop all swarming entirely, if these combs are allowed to remain till the surplus flow of nectar from clover is fully begun and the sections on.

Another effective way is to hang the combs up to the light and air with a space of $1\frac{1}{2}$ to 2 inches between them. For convenience in practicing this plan, when I built my shop and honey-room I placed the joists overhead so as to admit the top-bar of a frame crosswise, then by nailing common lath near the lower edge of neighboring joists, each space made a convenient place for keeping all frames of comb not occupied by the bees, the ends of the top-bars or arms resting on the lath. However, with combs not toughened with the cocoons

of many generations of brood, or where the brood has not reached parts of the comb near the upper corners of the frames, the light seems to have a deteriorating effect upon the wax, causing it to become brittle and crumble when thus left more than a season or two.

Where it is desired to keep combs for an indefinite period I have found the following to be the best way: Exposed to cold in which the mercury touches zero or below, everything of the wax-moth nature has to succumb and die. Therefore, if the mature female moth can be kept from such combs ever afterward they will be in perfect condition, even should ten or fifteen years elapse. After the combs have been thus frozen, lay two thicknesses of newspaper upon a level and out-of-the-way place on the floor of any building, setting a hive of these combs thereon; and after covering the hive with two thicknesses of the paper, put another hive of combs covered with paper on that, and so continue the operation until the pile is of the desired height, when the top hive should be protected with paper and a close-fitting cover. As these combs are packed close together and so tightly enclosed, they must be reasonably dry, and put away only in a dry place.

It is important, also, that they be not allowed to stay in any place after the zero freezing (and warm weather comes on before they are packed) where the millers have an opportunity to deposit their eggs on them. As all of our older beekeepers know, the female moth or miller which produces the eggs from which the larvæ hatch is furnished with a long ovipositor which she can insert in almost any crack or small opening—something which she can very easily find between almost any two hives which have been used for a little when one is set upon another. I would not say that these two thicknesses of paper close every crack or cranny, but for some reason the miller seems to shun them.

Whether the paper is repulsive, or because the paper extending outward from the hives all around two inches or so does not allow her to take a position to use her ovipositor, thin paper seems proof against her eggs. Tarred roofing-paper might be a certain insurance that, should there be any warping, or from any other unforeseen cause, worms should get in any one hive, they would be impeded from spreading to other hives in either direction.

GENERAL CORRESPONDENCE

WINTERING BEES IN A QUADRUPLE WINTER CASE AT MEDINA

BY E. R. ROOT

In our issue for Jan. 1, a year ago, we showed a method of packing four colonies in a case that we were using. This year we have made some changes, making the case larger and deeper, and at the same time providing a larger housing from the entrance of the hive to the outside of the case. See front cover design. Instead of a four-inch packing around the hive we have

The space occupied by four ten-frame dovetailed hives is $32\frac{1}{2}$ by 40. In the matter of the depth of the cases we decided to make it so we could put in two-story colonies if necessary. The depth, 25 inches, would not leave room for packing on top of double-deckers; but few such were packed. In a few instances where colonies were so strong we could not very well crowd them



FIG. 1.—The bottom of the winter case covered with three inches of planer shavings. Note the entrance slots and the three $\frac{3}{8}$ -inch auger-holes just above.

now six inches. Dr. Phillips, from experiments at Washington, found that with any thing less than six inches of packing there would be a radiation of heat from the cluster; so we made our cases large enough so that the inside dimensions are 45 x 52 x 25 inches deep.

down into one story, we decided to try these colonies alongside of single-story ones in the same case. This room for an extra story leaves a space of 9 inches on top of a single story of packing, and this is about right.

In deciding on the amount of packing we consulted Dr. Phillips; and it is his opinion



FIG. 2.—The housing inside of the winter case that connects the entrance of the hives with the entrances of the case. Note that the space is large to prevent clogging with dead bees.

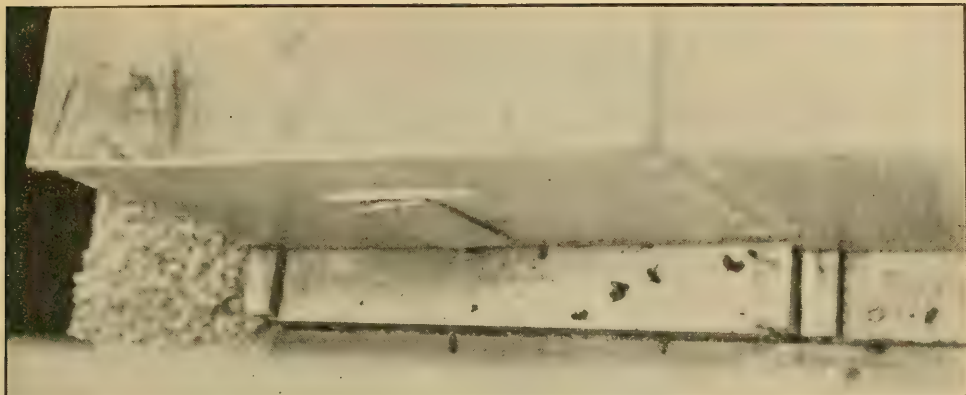


FIG. 3.—Looking on the entrances of two hives in one of the packing-cases. In the picture the hives are shown with the three-eighths side of the bottom up. It was our intention to put the deeper side ($\frac{1}{2}$ inch) up, to give more room for the accumulation of dead bees under the frames. There were a few hives packed with the narrow entrance, and our artist happened to get one of these groups.

that it does no harm to err on the side of getting too much. Six inches around the hives, eight to ten on top, and three or four under, would make a case that would give sufficient packing for most localities, altho he was free to say that in more northern locations, especially Canada, six inches might not be enough. But in the colder climates there is usually plenty of snow; and snow packed around the hives makes a good insulator providing the entrances are not closed by ice.

In order to provide packing under the hives, and to prevent the entrances from getting out of alignment with the openings in the sides of the cases, some cleats or supports must be provided of sufficient height to provide the amount of packing. Last year we used only $2\frac{1}{2}$ inches; but this year we are using 3 inches. In Figs. 1 and 2 can be seen the supports or parallel cleats that run lengthwise of the bottom-board or floor of the large packing-case. On these the hives rest, and also the board reaching from the projection of the bottom-board to the slots forming the entrances of the case itself. Over this board that closes the gap between the bottom-board extension and the outside entrance is placed a housing, so constructed that it fits the bottom-board projections, making a space of two inches deep. We made the space deeper this year to provide for the accumulation of dead bees that would otherwise close the space entirely. Just above the horizontal slot of the winter case will be seen three $\frac{3}{8}$ auger-holes—see Fig. 1. The purpose of these is to afford entrances and ventilation in case the lower horizontal slot is closed by the accumulation of dead bees. This is Mr. Holtermann's idea, and in the light of our

experience last winter we believe it to be good; in fact, it might be the means of saving not one but many good colonies.

In Fig. 3 we are looking down on the fronts of a pair of hives with the bottom-boards abutting up against the floor that reaches to the front of the case. This picture was taken before the roof or horizontal part covering the runway from hive to case was put in place.

The spaces over the entrances must be very carefully and completely closed so the packing material will not filter down and close up the entranceway from the hive proper to the entrance of the case itself.

In Fig. 4 we show a view of the floor before cleats were put in position.

In Fig. 5 we show four hives placed end to end and side by side, as we placed them last year on the floor of the case, and before the sides and ends were put on. Last year we used the supporting-cleats crosswise of the floor. This year we ran them lengthwise as seen in Figs. 1 and 2. The latter arrangement is an improvement in that it keeps the runways between the hives

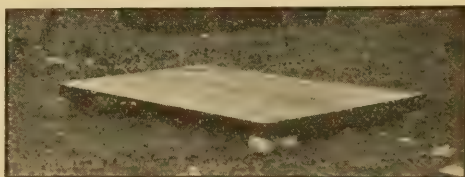


FIG. 4.—Floor for four-hive winter case.

and the ends of the case in better alignment. Last winter we had some trouble with the outside entrances not matching with the inclosed housing to the entrances

of the hives. This ing the cleats run year we have provided against this by mak-lengthwise, and by providing stops or cleats nailed on the bottom inside edge of the rim or case itself. These projections rest on the bottom or floor so that the case itself will not slip down, bringing the outer entrances out of alignment with the inside.

In Fig. 5 will be seen a bale of pine shavings. These can be secured, where one has neglected to gather together a lot of dry leaves, at about 25 cents a bale at a livery stable. It takes about a bale and a half to pack four hives. The expense is not great, because the shavings can be used over and over again, winter after winter.

Our winter case is made so we can take it apart in panels and pack it in the flat to



FIG. 5.—The four hives in position, the regular covers removed, leaving only the super covers, so that the hives may be close together. (This picture shows our former construction.)

shavings back in the case, and then places the case at the outer edge of the yard, to stay there for the season. The four hives removed are put back in the same position, but ten or twelve inches apart to afford convenience in handling the bees during the summer. Mr. Holtermann says that where

one takes down his cases every season he loses his packing material and enormously increases the labor of packing and unpacking; and there is no reason why one should take down the cases unless he desires to remove them to an outyard. The idea of winter cases is to keep them in one place, year in and year out, using them as a sort of windbreak around the apiary during summer.



FIG. 6.—An automatic screwdriver for putting in the screws at the corners of the case.

save room; but we prefer to put it together with common wood screws as shown in Fig. 6, with the idea of leaving them together year in and year out at the yard where they are used.

It is Mr. Holtermann's plan to leave these cases assembled. In unpacking he removes the cover, turning it upside down. He shovels the shavings on top on to the cover, lifts the four hives off, piles the

In the front cover picture there are shown nearly fifty packing cases of the Holtermann type. At three of our outyards there were no windbreaks, and as protection from wind is very important—as much so as packing—we decided to haul the bees home and pack at the home yard where we have ample windbreaks in the form of factory buildings and evergreens. We consider a good windbreak next to packing.

EUROPEAN AND AMERICAN FOUL BROOD

Their Differences, History, and Methods of Treatment

BY OREL L. HERSHISER

Continued from page 12 last issue.

A few historical facts may be of interest as a means of comparing the description and treatment of foul-brood diseases, given and practiced by investigators and experimenters of 35 to 50 years ago, with that of recent times.

Dr. Dzierzon records in the English edition of his work, "Rational Beekeeping," this prefatory statement in reference to foul brood: "Since the appearance of the first edition . . . we have further been successful in discovering the nature and the cause of foul brood . . . and almost simultaneously have discovered an infallible cure for it in salicylic acid." Salicylic acid as a remedy for foul brood was first brought to public notice in the papers communicated to the meetings of German beekeepers at Strasburg and Breslau, and published in the last numbers of the *Eichstadt Bienenzeitung*, the organ of the German beekeepers for 1875 and 1876.

As the salicylic-acid treatment seems to have been recommended subsequent to the time when the treatments by dequeening, decombing, and driving of the bees into a new hive were known; and as Dr. Dzierzon states that, since the appearance of his first edition of Rational Beekeeping, they had discovered the nature, cause, and treatment, with salicylic acid, of foul brood, we may reasonably place the discovery of such treatments by dequeening, decombing, and driving the bees into new hives at a period subsequent to 1861, the date of the appearance of Rational Beekeeping, and prior to 1875, when the salicylic-acid treatment was first brought to public notice.

DR. DZIERZON'S DESCRIPTION AND TREATMENT OF FOUL BROOD.

"An infallible symptom of the presence of foul brood is the discovery of dead, dried-up, shriveled larvæ or nymphs in separate cells among healthy brood. These dead larvæ have passed into a pap-like or tough mass, and later on into a grayish-brown or quite black crust on the floor of the lower surface of the cells. If the majority of the cells are in that condition the infection took place some time ago, and the evil has already become very great. Because a stock with foul brood generally ventilates considerably, the evil may be recognized in hives with immovable combs by an unpleasant smell proceeding from the entrance. The smell is similar to that of putrid glue

or meat. As the bees take the trouble to bring out separate larvæ that have not yet entirely rotted, such will be found sometimes on the floor of the hives affected. The bees take the trouble partially to remove to the outside the blackish-brown crust forming finally from the rotten matter. There are, therefore, found on the floor a dark-colored dust and entire skins torn off, which, when rubbed down between the fingers, give off the same unpleasant smell. In spring, when other stocks are already diligently building, the foul-broody do not generally make any preparation for it; at most they will do so only when they are fairly strong, and unusually good pasture sets in. If the combs are examined, the sealed brood is never found *en masse*, but standing in isolated, irregular patches. To be thoroly satisfied, a piece of brood-comb must be cut or torn out; and if it shows cells with the matter described above, foul brood is certainly present.

FOUL BROOD IS OF TWO KINDS.

"There is one kind that is mild and curable, and another kind malignant and incurable. Both kinds are, however, contagious.

"The curable occurs in this way: More of the larvæ die still unsealed, while they are still curled up at the bottom of the cell, rotting and drying up to a gray crust that may be removed with tolerable ease. The brood which does not die before sealing mostly attains to perfection, and it is only exceptionally that individual foul-brood cells are met with sealed.*

"This is exactly reversed in the malignant kind of foul brood. In this the larvæ do not generally die before they have raised themselves from the bottom of the cell, have been sealed, and begun to change into nymphs. The rotten matter is, therefore, not found on the cell floor, but on the lower cell wall. It is brownish and tough, and dries up to a firm black crust, both in consequence of the heat prevailing in the hive, and of a small opening bitten in the depressed cover. This matter the bees are not able to remove; and when they are in some strength they can at most get rid of it by entirely biting down the tainted cells and making fresh ones."†

* Here will be noticed what has in recent years been designated as European foul brood.—O. L. H.

† This describes what we now designate as American foul brood.—O. L. H.

TREATMENT OF THE CURABLE KIND AS
DESCRIBED BY DR. DZIERZON.

"To put a stop to the evil immediately, catch the queen without delay as soon as any foul-brood cells have been observed. In spring and early summer she may be advantageously used for making an artificial swarm. If bees are added to her from healthy stocks we may be sure of having a healthy stock; but if bees were given to her out of her own or other foul-broody stocks, the swarm must be left in a transport hive, sieve, or the like, twenty-four to forty-eight hours before it is put into its hive, and the queen must be kept caged here for some days so that brood may not be deposited nor brood-food prepared before the bees have used up all the honey and food taken with them out of their parent stocks, and have expended it in comb-building.

"Because there is now no more brood deposited in the stocks robbed of queens, none can die or go bad; and till a young queen is reared, fertilized, and has begun to lay eggs again, the bees will have gained time, if they are still tolerably strong, to purify the brood-nest completely. They may be assisted in this by cutting the comb so close that the bees are able to cover it thickly. The new generation will then generally thrive quite well, and the stock be brought back to health again. There would be a greater certainty of this if the entire previous comb, as soon as it becomes empty of brood, were cut out, and the entire stock were driven into a new hive."

COMPARISON OF THE DR. DZIERZON, THE
ALEXANDER, AND THE DR. MILLER TREAT-
MENTS OF EUROPEAN FOUL BROOD.

The primary Dr. Dzierzon treatment consists in depriving the colony of its queen and allowing it to rear another requiring 10 to 11 days to hatch and 7 to 10 days more to become fertile and commence laying, leaving the colony without a laying queen for a period of from 17 to 21 days,

during which time the colony will purify the combs and hive of disease.

The Alexander treatment consists in depriving the colony of its queen; nine days thereafter destroying all queen-cells that may be built, or any virgin queens that may have hatched; and on the 20th day after dequeening, and not sooner, giving a ripe queen-cell or virgin just hatched from vigorous stock, leaving the colony without a laying queen for a period of at least 27 days, during which time the colony will purify the combs and hive of disease.

The primary Dr. Miller treatment consists in caging the queen with her colony for a period of 8 to 10 days; then releasing her to her colony, the 8 or 10 days' time being considered sufficient for the colony to purify the combs and hives of disease.

Mr. Alexander increased the time thought necessary to accomplish the cleansing of the combs and hive, over that found necessary by Dr. Dzierzon, by about 10 days; and Dr. Miller decreased that time by about 10 days. It is obvious that the treatment that accomplishes the result sought in the lesser number of days is to be preferred. If it should be established that the disease is inherent in the queen, as has been announced by Messrs. M. G. and C. P. Dadant, then would the Dr. Miller treatment fail unless the confinement of the queen for the 8 or 10 days would also purify her of disease *bacilli*.

To quote again from Dzierzon: "The curable kind (European foul brood) may occur of itself, under certain conditions of ingathering, especially when the bees are working on bilberries and pines,* and sometimes disappears again of itself when the conditions have changed."

Kenmore, N. Y.

[This is the second of a series of four articles by Mr. Hershiser on the history and treatment of foul brood. In the first February number he will discuss methods of treatment under various conditions.—Ed.]

A MALIHINI IN THE HAWAIIAN ISLANDS

BY LESLIE BURR

October 12, 1915, is a red-letter day on my calendar, for it was on that day that I first saw the Hawaiian Islands, and at the same time discovered a new name for myself. It happened this way—the new name. I was standing on the corner of Fort and Beretania streets, examining the fire-station and the sidewalk, both of which are made of blocks of lava, and was observing the Hawaiians, the Chinese, and the little ki-

mono-draped Japanese women as they glided past. Some native Hawaiian children with schoolbooks under their arms passed by.

One of the children, a boy of about

* The mysterious way in which European foul brood spreads puzzled the beekeepers of 50 years ago. It is unlikely, however, that the germs of disease would be gathered from forage unless they were distributed to the same by bees from diseased colonies.



Part of Tamagawa's apiary.

twelve years of age, remarked to the other children, "Malihini," and at the same time indicated me. It was a simple thing, perhaps, yet I had been classified, identified, and named.

The city is a mass of vegetation; but most of the trees are old friends, and almost all of them are trees that were imported here. The royal palm is everywhere, perhaps not quite as beautiful as in Cuba; then there is the royal poinciana, the mango, the monkey-pod, and the algaroba. The last is the most common tree in the city. The first algaroba was brought to the island of Oahu by Father Bachelot in 1826. The original tree is still alive, and is to be found on Fort Street near Beretania. For the benefit of the Texas and New Mexico beekeepers I will state that the algaroba is nothing more nor less than their old friend mesquite.

The first apiary, or, for that matter, the first colony of bees that I saw after my arrival at Honolulu, was the apiary of L. Tamagawa, at Diamond Head. I had taken the Waikiki Street car to the end of the car line, and had then started to walk around Diamond Head. This is the crater of an extinct volcano. It is about seven or eight hundred feet high, and its base on one side is in the ocean. After leaving the street-car I had walked about two blocks when I heard the hum of bees; and, looking over the fence to my left, I saw an apiary of some seventy colonies of bees on the base of the crater.

I at once lost interest in my contemplated walk around Diamond Head, and went in to investigate the apiary. It proved to be the apiary of L. Tamagawa, a Japanese. He is an energetic fellow about thirty-five years of age. He was born in Japan, and came to the Hawaiian Islands when a boy. He has been an apiarist for some four years, having purchased his apiary from another Japanese who was returning to Japan.

He showed me a copy of the 1913 edition of the A B C, and seemed very proud of its possession. He admitted, however, that he found it very hard to read and understand. The reason is, I suppose, that he was not familiar with any Japanese words that are the equivalent of the English apicultural terms. Then, too, I noticed that he appeared to be better able to understand writing in Japanese than English, as he kept all his accounts in that language. Even the records or notations on his hives were in Japanese, and I had quite an interesting time having him translate into English what the Japanese characters meant that I found on the hives. His records, while crude, still showed every indication that he had a good knowledge of the elements of practical bee culture.

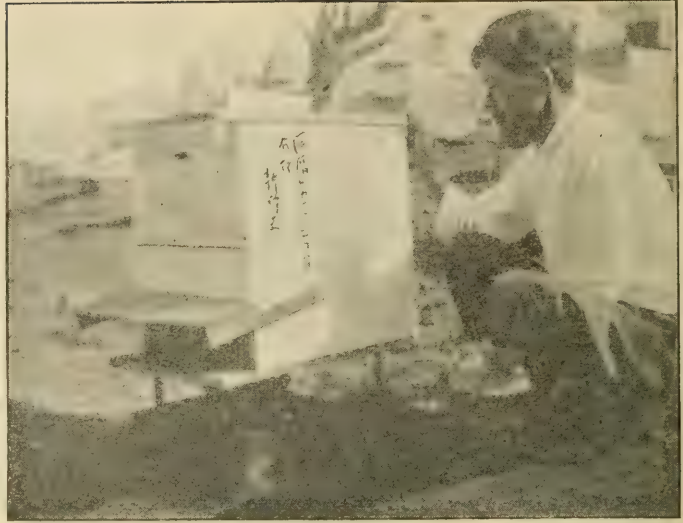
One matter that does not bother Tamagawa is keeping down grass and weeds in his apiary. The particular place where the bees are located is composed of volcanic ash of such a nature that grass and weeds are unable to obtain a foothold or nutriment. The only plant that seemed to be able to

live was the algaroba, or mesquite, as it is called in Texas. From their appearance I should judge that the algaroba was having as hard a time there in that apiary to exist as the mesquite has in some of the desert regions along the Mexican border.

There was one pest, however, and the method used to combat it was new to me. That pest was ants. The way they were combated was by making a framework of 2 x 4 lumber, the same size as a bottom-board. In this frame four holes three quarters of an inch in depth were bored with an inch auger. In each hole a very large nail or spike was driven, and on the heads of these spikes the hive was set. The spike was then coated with oil, and the hole at the base of the spike was filled with crude oil. Tamagawa informed me that it was a sufficient protection against the ants.

The surplus honey is secured from the algaroba. Both comb and extracted are produced.

Tamagawa has a wife, who is a very comely Japanese woman, and two beautiful children.



Tamagawa looking over the colony. Record printed in Japanese on the side of the hive.

As I watched the mother playing with the two little children under a bread-fruit tree in the yard, I could not help thinking that L. Tamagawa must be a happy fellow; and remember that gray hairs are creeping in among the brown on the crown of my head. But then, otherwise I should not be a malihini interviewing a Japanese beekeeper on the Island of Oahu.

Honolulu, T. I.

[This is the first of a series of articles entitled "A Malahini in the Hawaiian Islands." The second will be published in an early number.—ED.]

THE CHICAGO AND NORTHWESTERN MEETING

BY J. L. GRAFF

One of the striking utterances at the annual convention of the Chicago and Northwestern Beekeepers' Association was that of President N. E. France, of Wisconsin, who said that European foul brood had been a blessing in disguise. He spoke from his experience in wide travel among beekeepers in his own state. The presence of the disease had aroused apiarists to the necessity of understanding it and to prevent its recurrence. He said he knew bee-men who had said, "I am glad I had it. I'll know how to take care of it in the future."

A year ago, when Mr. France was at the meeting, he said that within three years there would be no European disease in Wisconsin. He said that his people would be

clear of it today had it not been for the lack of co-operation, and the failure to report cases. Some time ago he asked apiarists whom he knew as beekeepers to give him the names of five neighbors who kept bees. This resulted in his getting 1500 names. They were beekeepers, some of them keeping bees in only a small way, whom he had never known before. Seventy of the fifteen hundred had foul brood in their apiaries. It is the man who has a few bees, and because he has so few he thinks it isn't worth while to report the presence of the disease, who causes the trouble. Were it not for this fact, Mr. France said, his prediction of last year would have come true by this time, or in but a little while longer.

There was but a small attendance at the meeting this year. Old-timers have dropped out, and young blood has not shown up as strong as desired. Secretary Bruner said that when he took the position last year he had a list of 150 members. He undertook to round them up, but was able to find only twenty members who could be depended on to attend a meeting. The others, in most part, were either dead or had moved away.

Despite this discouraging report there was much life in the meeting, and committees have been appointed and are to work up a plan by which it is hoped to make this old association take on the life of olden times. It is proposed to encourage membership and attendance at meetings by adopting the Michigan plan of awarding medals for fine exhibits of honey and honey products at future meetings.

It was also resolved to get a line on those who are promoting the work of domestic science and carrying on cooking demonstrations in schools, to the end that honey may be recommended as pure food, listed along with numerous other articles as desirable and healthy food for the human family. A committee was appointed to see the heads of instruction of state and city, to the end that the product of the bee may get a fair

show in the schools along with other pure foods.

The beekeepers also passed a resolution asking the state fair officials of Illinois to provide a separate and adequate building for the use of the beekeepers of the state so that demonstrations in the use of honey as a food may be properly made, and the honey-producers thus get a fair advertisement.

One of the members said that he had succeeded in getting his neighbors to take up the work of beekeeping by inviting them to witness his own operations.

One of the beemen of the Fox Valley, in Illinois, said that it is a mistake that the associations do not hold meetings more frequently. His own local association held a meeting every two weeks when important business made it necessary or desirable.

The Chicago-Northwestern Association voted to sever affiliation with the National, but decided again to affiliate with the Illinois State Association.

Officers were elected as follows: President, N. E. France, Wisconsin; vice-president, E. S. Miller, Valparaiso, Ind.; secretary and treasurer, J. C. Bull, Valparaiso, Ind.; delegate to Illinois State meeting, J. C. Bull, Valparaiso.

Chicago, Ill.

WINTERING BEES IN SUPERS

BY JOHN E. ROEBLING

I did not wish to imply in my article, page 863, Oct. 15, and as mentioned by Grace Allen, p. 969, Dec. 1, that twenty frames with honey scattered around in each is an ideal winter brood-nest. Our plan is to fix up for winter late in the fall, after the first cold spell of heavy frosts, at which time the bees will have formed their winter nest. Then on some cold day when the thermometer registers slightly above freezing we start in and take off all the supers, both comb and extracted, note amount of winter stores, and location of brood-nest.

The comb-supers will be free of bees at this time, and also do away with all trouble from robbers. If we note the bees have located the winter nest in the extracting-supers immediately above the brood-body, and this super seems to be light of stores, with nothing below, we get another super containing some stores, enough combined with the two to carry them safely thru the winter, and place it under the one containing the brood-nest. This plan has always succeeded well with us.

I much prefer, however, to find the bees prepared to winter in a super containing an abundance of stores, and then take one of the empty supers, or nearly empty, and place underneath for the queen to get busy with in the spring. I believe this to be the ideal condition for wintering, at least in this locality, as they breed up fast and come out strong. My theory is that it is much dryer and warmer in the upper super than it would be if this super were placed direct on the bottom-board, surrounded by snow, water, and ice the greater part of the winter.

Some of the brood-nests run for comb honey are very heavy, practically honey-bound; hence very little headway will be made in the spring for lack of room. Many of these are treated to a set of the extra extracting-supers underneath, and will produce a surprising number of bees early in the season. Shallow-frame supers are also used, above and below. This plan also does away with opening of the hives to put on supers too early in the spring. Sometimes

the weather changes and turns very cold, and much damage is done by the chilling of brood. I find it bad practice to open the hives much before drones are beginning to fly freely and honey coming in, as the bees are inclined to be cross otherwise, and sometimes the queens disappear, the latter frequently where clipping is done too early in the season.

We cover with the regular escape-board, deep side down. This enables the bees to cross from frame to frame, and they will never be found dead in the spring with honey in the adjoining frames. We place the packing on this board, burlap sacks and newspapers, and use the A-shaped cover, shingled. This makes an ideal cover, with good ventilation in summer, and always

perfectly dry. The covers are heavy and will not blow off.

I do not like the idea of opening the hives so late in the season; but it enables us to work fast, and there is no fear of robbers getting the upper hand. We try to choose a day when the bees will take a flight during the warmer part.

If any of your readers are troubled with skunks I have found it a very good plan to place a pane of window glass on the alighting-board. This will cast a reflection from the stars and sky, as one passes by; and these night prowlers fight shy of anything that apparently moves which they do not understand. They are said to be easily trapped, but I have not found it so.

Cincinnati, Ohio.

SOME UNCOMMON HIVES

BY E. G. CARR

Not the least interesting of the things which enter into the bee inspector's life are the different types of hives which he sees—not alone the nail-keg and grocery-store box, but also the home-made hives upon which has been put much care, labor, and considerable expense. These statements apply with special emphasis to New Jersey, since there are so many beekeepers in this

state from foreign lands, and it is the rule for these to cling to the ideas of the mother country. It is seldom they do not make considerable effort to provide a good home for the bees.

Perhaps the oddest type from the viewpoint of the American beekeeper is the Polish hive shown in the illustration. This is made similar in appearance to a cup-

board, and it houses three to eight colonies or families. The hive in the picture is made for eight colonies and is owned by Mr. R. Kohlos, of Woodbury, N. J. In the illustration showing the rear of the hive is seen Mrs. Kohlos, who is a very able bee-woman.

It will be noticed that the frames of this odd hive are crosswise of the entrance, and either hang on metal rabbits or fit into the grooves in the hive-sides, and are removed from the back of the hive. It is, of course, necessary in getting at a particular frame to remove all frames in front of it.



The Polish hive is similar to a cupboard.



Mrs. Kohlos is an able beekeeper.

Sometimes there is a small portable rack in which the frames are hung as removed, and a pincers-like tool is used in removing them.

It is pleasant to know that the Kohlos are not satisfied with this type of hive as compared with the modern frame hive, and



Two-story hive made from a section of a tree-trunk.

propose to change all the colonies to the latter type as soon as convenient.

The next illustration is a general view of this interesting apiary, which contains, besides the Polish hive, a battery of eight hives in a row, and all built together somewhat after the fashion of the original Langstroth hive.

Another curious hive contains two colonies, and is on the back-opening Polish style, with movable frames, but is made from a section of tree-trunk.

New Egypt, N. J.

THE SMOKE VS. THE CAGE METHOD OF INTRODUCING QUEENS

BY A. C. MILLER

Editor Gleanings:—I note what you say in the Oct. 15th GLEANINGS concerning the distress or smoke method of queen introduction. I am surprised at your results, for so many find it successful. Even were it not better than the cage method, I should continue to use it, for a failure is known the same or the next day, while by the cage method it sometimes is a week before the queen is out, and a day or two more before

we know she is safe. Either you have a different operator or there is carelessness in creating the condition of distress.

This year, Nov. 6, I dequeened some twenty colonies of hybrids, and ran in the new queens. Breeding had been stopped for some time, and it was none too easy to find the old queens; but it was all done, and new queens in within three-quarters of an hour. Every queen was accepted. I



The interesting Kohlos apiary.

knew it before I left the yard an hour later, and was sure of it on an inspection made later.

I do not recommend requeening so late; but I had the queens, and the very late and mild season led me to make the experiment.

A veteran beekeeper near by tried to put in eight queens from the same lot into just the same sort of bees. He used the cage method, and lost seven out of the eight.

Providence, R. I.

[We have just been interviewing our men who work in the yards, all of whom, without an exception, we have had for a number of years. On further inquiry we found that the reason they do not use the smoke method is because it takes more time than the cage plan. The former must be carried out very carefully, and, finally, the queen must be put through a contracted entrance. Sometimes they get away from the operator. The men say they can introduce by the cage method more rapidly, especially when there is a large number to be intro-

duced. Furthermore, the smoke method will not answer in the case of nuclei, either with the babies or with the larger ones.

We introduce hundreds of queens at a time, and the cage method is invariably used with all our colonies.

If the directions are followed, the smoke method, barring an occasional queen that gets away from the operator, is quite reliable, and will probably introduce a larger percentage than the cage plan; but by the latter plan our loss probably does not exceed one per cent; and the time consumed in introducing a hundred queens by the smoke plan will more than offset the value of one queen.

There is one thing sure, and that is, the directions for introducing by the smoke plan must be followed out to the letter. Right here is the difficulty with some beginners. If they are a little timid in handling a queen they may let her get loose. For the average beginner we believe that the average candy-cage plan is the safer.—Ed.]

ONTARIO BEEKEEPERS' ANNUAL MEETING

BY MORLEY PETTIT, SEC.

The annual meeting of the Ontario Beekeepers' Association held recently in Toronto was a record-breaker in point of attendance, two hundred beekeepers being present. President Byer, discussing heavy winter losses of 1914-15, attributed them to

inferior stores and the poor breeding season of the fall of 1914. Demand for honey is good.

Morley Pettit, secretary-treasurer, reported a membership of 1130 and a balance on hand of \$234. A large number of members

were buying queens co-operatively thru the association.

Dr. E. F. Phillips, F. W. L. Sladen, and Prof. L. Caesar delivered addresses. F. W. Krouse, of Guelph, was elected president, and James Armstrong, of Selkirk, and W. W. Webster, of Little Britain, first and second vice-president, respectively. Morley Pettit continues as secretary-treasurer.

An attempt will be made to increase the

fine against spraying trees during fruit-bloom from \$25 to \$100. The provincial apiarist has been requested to conduct experiments to find the effect on bees of sweetened poisons for the destruction of grasshoppers and field-pests. The Dominion Government will be petitioned to take measures to prevent the importation of bees from diseased districts.

Guelph, Ont.

PROBLEMS OF MARKETING GET ATTENTION OF INDIANA BEE-KEEPERS

How to sell honey was the chief topic of discussion at the convention of the Indiana State Beekeepers' Association held at Indianapolis December 10 and 11. Wallace Buchanan, representing the postmaster of Indianapolis, talked on "Honey by Parcels Post." The Farm to Table movement, he said, is growing, and its success is all a matter of proper packing.

"Instead of packing honey 24 sections to the case, why not pack it 3 or 6, or just the way the average family would want it? Comb-honey cartons can be made to hold three sections at 2 cents each carton, or for six sections at 3 cents for each carton. The total cost of container and postage shows that it pays to ship one pound by mail.

"If it pays a man in Boston to ship his cod and mackerel all over the United States by mail; if it pays in Los Angeles to ship nut kernels all over the United States, why can't the beekeepers market honey by the same plan? Simply advertise, and make the buyers know where it can be obtained."

George W. Williams, secretary of the association, read a paper, "One Promising Outlet for Dark Honey." He said, among other things, "The karo people are pushing their product, and the honey people are not. You will see karo attractively displayed on half a million shelves and its posters on ten thousand billboards. In the meantime honey is not seen on the shelves, no pictures appear in the windows, no publicity in the papers, and the beekeeper sits tight, doing nothing and keeping eloquently silent.

"The beekeepers' associations should take steps to have the value of honey as a staple food, and especially the value of the darker grades in cooking, taught in the domestic-science departments of the public schools."

Miss Emma Piel told how she met outside competition. "I believed that to put my honey in glasses was the best advertising I could do. I heard compliments of all kinds for my honey. People stopped me on the street, and said they had found my honey fine. I had no trouble in selling my honey this year in larger quantities."

B. F. Kindig believes in saying things right out. "The distribution of Indiana honey is extremely poor. We find one market where you can sell honey if you only mention it, and others where you can hardly give it away. There is a tendency on the part of beekeepers to stampede the large markets. Too many think they must sell the honey as soon as they get it off the hives. Their surplus might be moved with a very little advertising. There is a poor quality of salesmanship among the beekeepers of this state."

The opening address was given by Mason J. Niblack, president of the Association. He read a paper by C. P. Dadant on out-apiaries. Miss Emma Baylor, of the state department of public instruction, asked the beekeepers to furnish free literature on the food value of honey for distribution to the students of the domestic-science departments thruout the state. Prof. D. A. Rothrock read a paper on aster honey.

FEEDING DRY SUGAR

BY W. J. SHEPPARD

I have noticed that very little reference has been made in the bee journals during the last few years to feeding with moist sugar, or "dry-sugar feeding," as it used to be called. I conclude, therefore, that it must have fallen into disuse somewhat.

The past season here was a very poor one. After an unusually fine, dry, and warm February, March, and April, the three succeeding months turned wet with low temperatures prevailing all through. Consequently very little nectar was available

for the bees, and in June a good many colonies were actually on the verge of starvation, and ran down in strength. Feeding, therefore, became absolutely necessary.

Under these circumstances, and as I am away from home a good deal, I decided to feed with moist sugar. I had some nuclei in which the queens had stopped laying; but very soon after the bees got on to the "dry sugar" there was quite a transformation. The queens started laying again in earnest, and the frames were soon full of brood once more.

The feeder hangs like an ordinary frame. It is easily and cheaply made by nailing a thin piece of board on either side of an ordinary Langstroth frame after first cutting out the top-bar, excepting about an inch and a half at either end. The sugar can then be put into the feeder at the top and pressed down tight, and it will hold three or four pounds. A loose piece of thin wood can be fitted in the top in place of the top-bar that is cut away, leaving, of

course, a bee space under for the bees to enter. This will keep the quilt in its proper place so that it will not drop into the feeder and prevent the bees getting in.

The advantages of dry-sugar feeding consist in the stimulating effect it has on the bees, as apparently they are not able to take it fast enough to store it in the combs, so that it is practically all used for feeding the brood. Also, after a feeder has been filled and given to the bees it will not require much attention, as it will not need replenishing for a long time, if at all. The best sugar to use is a moist cane sugar with a fine grain such as Porto Rico.

I feel convinced that, for this province, where in normal seasons we generally get a wet June, dry-sugar feeding will be very suitable, as it will be the means of keeping colonies up to full strength so as to be ready for the main honey-flow in July. Filled with sawdust or cork dust, these feeders make good dummies for winter packing.

Nelson, B. C.

1915 WITH THE WIRE ESCAPE-BOARD

BY A. J. KNOX

The difficulties of brushing bees from the combs in the production of extracted honey have led many beekeepers to turn eagerly to any device that promised a measure of relief from existing troubles.

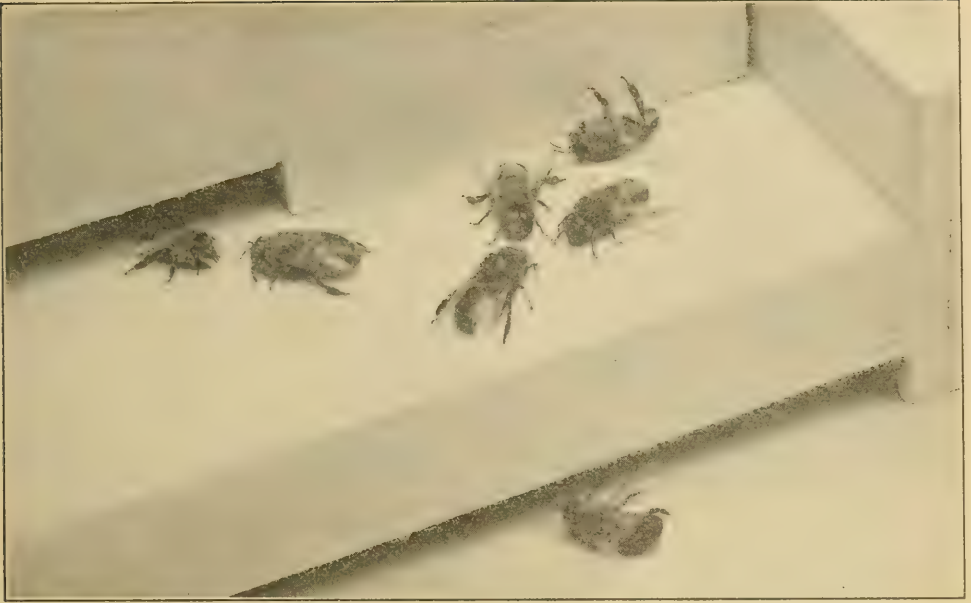
Since the general adoption of the Italian bee it has become harder to shake the combs clean. A slight jar previous to the shake causes them to stick fast. When the wire escape-board appeared I decided to try it, and to that end made fifty boards. In some of them I put the regular double-end Porter escape, set in the center of a strip of wood running across it. In others I put two single escapes on this strip, one at each side. In yet others the double escapes were simply soldered into a hole cut in the center of the wire, without any wood running across.

In use I did not find any appreciable difference in the time taken to clean the bees out of the supers by any of the methods of attachment or positions of escapes in the boards. I did find it made much difference whether the escape-board was put next to the brood-chamber or under the second or third super. When next to the brood-chamber it took from two to four days to clear out the bees; under the second super, from thirty-six to forty-eight hours. Placed under the third super, the bees would usually all leave in twelve hours.

One obstacle in the use of escapes is found in the brace-comb that is frequently built between the supers. If there is perfect uniformity in the bee-space clearance over the frames, there is not so much trouble; but taking outfits generally, there is quite a percentage liable to this drawback. In this connection the new two-piece board put out by Morley Pettit, the provincial apiarist, is quite an advantage. The board is really two boards, meeting in the center, and having a single Porter escape in each section.

One end of the hive is pried up, and one section of the board slid in. Then the opposite end is treated likewise, the boards meeting in the center. By this method considerable brace-comb can be squeezed thru, and the boards are very convenient and pleasant to put on. On the other hand they cost more money, and are more bulky to haul around to outyards. The boards are successful in retaining the heat of the honey, and make extracting lose most of its terrors, especially after the flow.

Sometimes, however, it is difficult to know just where you will be obliged to extract first; and by the time you find out, the delay necessary for their use can't be afforded. They also involve an extra trip to the outyard, and the time required to put them on is considerable. In a well-equipped



The lament of the drones.

apiary, abundantly supplied with supers, they are a delight to use, but have no place in a hurry-up job where supers are short.

Where thin nectar has been stored in supers, and the wire escape put on before it is ripened, the heat of the colony and the evaporation process going on below does not seem to ripen it properly.

After the rains, the bees in this locality stored some thin nectar from a second bloom of white clover. The buckwheat was

out; and to keep it from mixing, and allow the thin clover to ripen up, a wire escape-board was put under the top, or second super containing the thin stuff. This was left on the hives for a couple of weeks: Result, the only sour honey I ever had, and I am glad there was only 200 lbs. of it. It looks as if the presence of the bees on the honey were necessary to the proper ripening of it.

Orono, Ont.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sightings among the Bees

BY H. H. ROOT

During the last year we have been accumulating quite a number of pictures that we have taken of various subjects pertaining to bees, only a few of which have appeared on these pages. I propose to take up in a series of articles one or two subjects at a time, presenting the pictures and letting them tell largely their own story. We all like to look at pictures. If this were not true the motion-picture shows would not be so successful.

Twenty years ago, only an occasional beekeeper owned a camera. Now a very large number own cameras or kodaks, and the resulting half-tone engravings on the pages of bee-journals are a great improve-

ment over the invariable zinc etching from a pen-drawing, or wood engraving characteristic of the time before the kodak, or hand camera, revolutionized picture-taking.

We are asked so many questions on photography that perhaps a few general remarks, first, concerning our equipment, may not be out of place.

For picture-making about home we prefer glass plates rather than films. They cost but little over half as much, are somewhat more convenient to handle, and they may be obtained in a variety of emulsions suitable for all classes of work. There is no one all-around plate suitable for all kinds of pictures. We use Seed 23 plate

for copying, and frequently for landscape views, such as apiaries, etc. For general quick work about the apiary showing operations, etc., the Seed 27 is better, which has the same speed as the film ordinarily used in kodaks. For photographing live bees on flowers, or on combs, a faster plate is necessary. The Seed 30 may be used, which is about twice as fast, but we prefer the Seed Graflex, which has a speed about four times as fast as the No. 27. In other words, if a picture could be taken in $1/25$ of a second with the No. 27 plate, or with kodak film, $1/100$ of a second would be ample exposure if the Graflex plate were used. Taking life-size pictures of live bees requires an exposure as short as $1/100$ of a second, or even $1/300$ of a second. Therefore, extremely rapid plates are required. Such fast plates as the Seed Graflex require a little more careful handling in the dark-room in order to prevent fogging, but are otherwise developed the same as any negative.

For photographing honey, or for obtaining the correct tone values that show the right amount of contrast between certain colors, Panchromatic plates must be used. We use either the Wratten or the Standard Panchromatic plates for such work. Frequently a "filter" must also be used over the lens during the exposure. In a later article, illustrations will be used showing the correct and incorrect tone values of honey in glass.



The "worker" bee.



A bee with a load, too busy to dodge a loiterer, unconcernedly climbs over.

In making prints we use Azo paper, Grade F, which is a white glossy paper. We use three different contrasts—the Soft, the Hard, and the Hard X; the Soft for harsh contrasty negatives; the Hard for medium negatives, and the Hard X for thin negatives lacking in contrast. Many prints submitted to us by beekeepers are unsuitable for half-tone reproduction. In such cases, if the picture seems to warrant we send for the negative, and in almost every instance we find that, by using the proper paper, a much better result can be secured. If the negative is all that it should be, the Soft paper will produce the best results; but many negatives are so lacking in contrast that a harder paper is necessary in printing.

Even when the photograph is clear and distinct, the half-tone reproduction may not be all that is desired. The illustration of the drones on the preceding page is from the same photograph as the illustration accompanying Mrs. Allen's poem in the November 1st issue, "The Lament of the Drones." The first engraving was too small, and was not a very good engraving at that.

PHOTOGRAPHING LIVE BEES AT CLOSE RANGE.

Last summer I had photographed bees working on different kinds of blossoms, and had been having, therefore, an excellent opportunity to notice the feverish yet joyful motion of the bees collecting pollen, like the nervous yet enthusiastic ways of a man possessed with the get-rich-quick idea. I had also secured pictures of bees with loads of pollen on their legs, and I wanted to get one showing the business-like rush of a pollen-laden bee into the hive. But, to my surprise, I found the rush so truly business-like that catching it with even a fast plate and a quick-working shutter was not easy. I finally did secure an exposure that show-



Queen poking her head into cell to see if it is polished ready for a new egg.



Queen laying. Note the circle of bees around her in mute adoration.

ed the bee rushing in with pollen, but it was not quite up to my expectations.

In making these photographs I observed incoming bees absent-mindedly climbing over any loiterers on the alighting-board, that did not happen to get out of the way soon enough. It was exactly like two people meeting each other on a narrow sidewalk, and both dodging back and forth until one in disgust gets clear off and allows the other to pass, only the disgusted bee carrying the load calmly climbed over the offender—too busy to stop and go around—and then hurried into the hive without looking back, as much as to say, "There, perhaps that fool youngster will know enough to keep out of the way next time."

The illustration shows the *busy* bee just half way over the lazy one. Just watch the alighting-board some day next spring when the air is warm and the soft maples are in blossom, and see if you can not imagine the same conversation.

The next illustration shows a scene familiar to every beekeeper—a queen with her head poked down into a cell momentarily to see if it is ready for an egg while the surrounding bees wait almost breathlessly; and at the right the same queen with her abdomen down in a cell in the characteristic position of laying, the admiring bees meanwhile standing about with their heads toward her, some of them caressing her.

To be continued

THAT NEW BEE DISEASE IN THE WEST. THE SYMPTOMS. IS THERE A CURE FOR IT?

The Isle of Wight Disease in England a Terrible Scourge

BY W. HERROD-HEMPSALL

[On pages 784 and 922 we asked for reports giving the exact symptoms of the new bee disease that has killed so many thousands of adult bees in the West and particularly in the Northwest. We received a good many letters; but among the number are two from England that refer to what is known as the Isle of Wight disease, and which is possibly the same thing that has been causing trouble in our own country. In this symposium we give first the letters from England and then the others, from the United States. Editorial comment will appear in the regular editorial department.—Ed.]

I have watched very closely the various articles which have appeared in GLEANINGS on the great loss of bees in the various parts of America. I therefore feel constrained to write and warn American beekeepers of their danger. From the accounts, I am quite certain that the loss of bees is occasioned by *Microsporidiosis*,

otherwise Isle of Wight disease. The Americans, to comfort themselves, are making the same mistake that was made in this country when it first broke out—that is, attributing it to sprays of various kinds. In this country we have had beekeepers go so far as to say that loss was caused by the tar spraying of roads. Let there be no

mistake. Everything has been tried in this country as a cure, without success up to the present. Therefore the only means of checking or eradicating the disease is to destroy at once any colony showing the well-known symptoms. If this had been done in Great Britain at the first, the terrific loss which we have sustained would not have occurred. Our most practical and thoro beekeepers are helpless in the face of this disease. When an apiary is attacked, the owner is in the same position as a man whose house is on fire and no water available to put it out within a couple of miles. The disease is not unknown in America. I am speaking from memory as to the date of issue in GLEANINGS, but think it was in 1885 when some one wrote a letter descrip-

tive of a mysterious outbreak of disease in the Utah Valley where thousands of colonies were lost. That letter might have been a descriptive one written by a Britisher on the symptoms of Isle of Wight disease in his apiary. Knowing as I do the serious consequences of this disease, as I have experienced in my own apiary, where all the 126 colonies were lost, I again urge upon my American brother beekeepers to destroy ruthlessly all affected colonies and their combs; thoroly disinfect the hive, not only for their own sake, but also for the sake of their neighbor beekeepers, as robbing and the soiling with excreta of the drinking-place are the chief sources of contamination.

London, England.

THE NEW BEE-DISEASE NOT AFFECTING THE BROOD

BY C. H. BOCK

I have been much interested in accounts that have from time to time appeared in GLEANINGS of wholesale mortality among bees in the United States, and particularly so in that on page 784, Oct. 1. Bees hopping about in the grass, and collecting in bunches on the ground, is what occurs in cases of *Microsporidiosis* (the so-called Isle of Wight disease), which is yearly making larger and larger inroads into the number of stocks in Great Britain, until a bee threatens to become a *rara avis*. Incidentally I may mention that my own losses have been 260 colonies.

If the disease around Seattle is *Microsporidiosis*, Prof. Kincaid is either in error or has been incorrectly reported in saying that the bees' heads are full of spores. *Nosema* spores occur only in the gut and the gut-contents of infected bees.

In regard to the dead brood, I agree with you. Altho larvæ may be, and are, infected with *Nosema apis* at an early stage of their existence, there is no microscopic evidence of disease, and the death of the brood is to be attributed to the adult bees of the colony being so diminished in numbers, and the survivors so unhealthy, that they are no longer able to feed the larvæ or maintain the temperature of the brood-nest. Taking away all brood and feeding the bees frequently effects a temporary improvement, but a temporary improvement only. *Nosema* is still present in the gut, and the colo-

ny ultimately succumbs—usually during the following winter.

The reluctance of sick bees to put up a fight in defense of their stores has been a very marked feature here this autumn—stocks suffering only slightly from the disease and strong in numbers allowing wasps to carry off their honey with scarcely a protest. One consolation is that the wasps carry away the germs of disease, and themselves perish.

If any one in America whose apiary is suffering from a scourge like that described as raging around Seattle, Wash., would send me bees for microscopic examination, packed in such a way that they reach me alive, they would be gratefully received; and if you could put me in communication with any one whose apiary is so affected I should be doubly grateful. I suppose that, during the winter months which are now upon us, it would be impossible to avoid the bees perishing on the journey, and dead bees would be of no use for diagnosis. The bees sent should be taken from the hive. Crawlers picked up off the ground should on no account be sent, as these would inevitably perish *en route* at any period of the year. But during the warmer months I should think that it would be quite possible to get bees thru in good condition.

I should be pleased to report to the senders of bees the results of the examination.

The Elms, Ashley, Newmarket, England.

THAT WESTERN BEE-DISEASE; THE SULPHUR TREATMENT HELPFUL

BY M. W. HARVEY

[Mr. Harvey has in the neighborhood of 700 colonies of bees. He was the subject of an article by Wesley Foster, April 1, 1914, in his series "Beemen I have Known."—Ed.]

I had six cases of the new western bee disease in one yard and one in another, the yards being three miles apart.

The first to show the disease was my ten-dollar golden breeder and two of her daughters. I treated them with sulphur, and the trouble was checked. I continued to treat them for two months with sulphur every two days; and when settled warm weather came it disappeared. They then built up and made two supers of honey around.

The other queens were one leather Italian, one black and two hybrid. So it seems that the disease is no respecter of race. They were treated with sulphur for about a month twice a week, and the disease seemed checked; but when I stopped treatment in a week or ten days the bees would start dying as badly as ever. Then I tried a physic, but I suppose I did not get it strong enough, as it had no apparent effect. So I returned to the sulphur treatment, and kept it up until the main honey-flow commenced. Up to that time the two hybrid colonies were getting strong, and the bees had about quit dying. They had three and four frames of brood, and plenty of bees to cover the brood; so I left them alone for three weeks,

and concluded they were safe to take care of themselves; but what was my surprise when I went back to them at the end of the three weeks to find one dead and the other with queen and a handful of bees!

The leather Italian and black colonies got so weak by honey-flow time that I killed the queens, gave each three frames of sealed brood and young bees; then I gave a golden queen to each. At the end of the season of 1915 they were as good as the best colony in my yards.

My conclusion is that it is a bad case of paralysis. The actions of my bees were the same as described by Mr. Ladd, of Oregon, in GLEANINGS for Nov. 15, p. 922.

I hardly think that weather conditions have anything to do with it, as my bees are at Reno, Nevada, and we had a cold late spring lasting until June 16; but the disease lasted into July after hot dry weather had come.

I feel sure it is the same disease that weakened the bees so badly in Mason Valley, Nevada, in 1914, that the honey crop was practically lost, tho I did not hear of the disease appearing there this year. But if it makes me another visit I will find a cure or kill the bees trying.

Sebastopol, Cal.

THE NEW BEE-DISEASE IN TEXAS; BAD WEATHER ONE OF THE CAUSES

BY ALFRED L. HARTL

Four years ago in the spring my bees bred up nicely, and at the approach of the spring honey-flow they were very strong. Just at the opening of the flow we had considerable cool and rainy weather which kept the bees in their hives for about two weeks. After a few days of this weather I noticed considerable dead bees at the entrance of a few colonies, but didn't pay any attention to it. Next day I again went among the bees in my home apiary, and found that all the colonies in the apiary were affected. Of course some were worse than others, so I at once examined the colonies and not only found that the bees were dying but also the brood. In a few colonies the entire brood was rotten, and so of course I felt as if I were sitting in hot water. I then sent a sample of brood to Washington, D. C., and then went to my four other apiaries and

found the very same disease there. Some colonies had handfuls of dead bees at the entrances and lots of dead brood, so I started to treat them as for American foul brood, but without any good results. The brood in the new combs was just as rotten as in the original combs.

Then I received an answer from Washington, saying it was sac brood. It seems to me when a colony is badly affected with this malady it loses its energy, and consequently most of the brood will be starved, which will rot in the combs till clear sunshine comes.

I don't think there is another disease that can cripple an apiary in a few days as this does, for the bees die by the thousands, and hardly any brood will hatch. Of my five apiaries (560 colonies) I lost 13 colonies outright, and got no surplus from three

apiaries, and only a small crop from the other two apiaries.

The symptoms are not the same as for bee paralysis. The bees tremble but very little, and are not as shiny, and but few are swollen. In fact, some bees that look healthy in every way run out of the entrance, but are unable to fly, fall off the alighting-board, and crawl away.

After trying different treatments without any results I have come to the conclusion

that the only cure is settled warm weather for a few days. I positively know cool rainy weather causes its appearance, for the next two seasons whenever we had several days of weather that confined our bees to the hives the disease would reappear. Fortunately, the last two seasons I haven't had a trace of the disease, altho it still gives me the chills when the weather is favorable for its appearance.

Elmendorf, Texas.

TREATING BEE PARALYSIS IN WASHINGTON

BY MRS. A. A. GOOD

I do not think the old or new disease that has been so bad in western Washington this year is in my apiary. From the description I have read in the journals at different times I think my bees have paralysis. The first I saw of it was in 1911 in a colony whose queen was raised from an egg of a queen I got from Texas. Every year since then, except this year, I have bought one or two queens from the East, and in nearly every colony where I have queens raised from the eastern queens the disease has appeared, and once a year afterward it broke out in the colony where I had put the eastern queen. I have never had it in my native bees. I say "native" because my bees are descendants of bees taken from the woods. They are not black bees. They are as good-looking Italians as any that were hatched from the eggs of the Italian queens I bought, except the golden.

When the disease first starts there appear a number of small black shiny bees with their wings slightly spread, and some of them trembling. Then there will be bees

with distended bodies, some trembling, and some stupid; and, if let alone, the colony will dwindle away. I cure it by killing the queen and giving them sealed brood and a queen-cell from a healthy colony. I have tried introducing a queen, but have never been successful in getting one accepted in a diseased colony.

The spring of 1915 was the best one in my apiary that I have seen in my seven years of beekeeping. The bees built up well and stored some honey in April. Then it came off dry. By June they had used up all their stores in brood-rearing, and in July I had to feed a number of colonies or they would have starved. I have often wondered if hunger and poor honey did not have something to do with this new disease.

There was a two-weeks honey-flow in August, and the most they gathered was honey-dew off the leaves of the alders, and that is all they have in their hives now; but our winters are mild, and I hope the bees will come out all right in the spring.

Lakewood, Wash.

A SUCCESSFUL SULPHUR TREATMENT OF NOSEMA APIS

BY O. S. DAVIS

The bees about here have *Nosema apis*, Isle of Wight disease, just plain paralysis, or something, all right. I have seen a hundred colonies at one time in our apiaries affected; that is, the bees were sick, crawling over the ground in all directions, and dying everywhere. Some colonies were very much worse than others, and our best colonies were often the worst affected. Some of the bees were shaking as with the palsy, others were slick and shiny, some had distended abdomens, and some had a pinched-up appearance. Queens became affected

and soon died. In a few hives the brood died—from chilling, I think.

We tried sulphur according to the A B C and X Y Z—i. e., we took the brood away and sulphured the bees thoroly. They generally died. Then a neighbor beekeeper told us to put sulphur on the alighting-board, but it did not work very well. So we got a sulphur-machine that my brother uses to blow flowers of sulphur over the grapevines to fight mildew. This machine blows a fine spray of sulphur with considerable force right into the mouth of the hive. We treat-

ed the whole apiary about twice a week with a sulphur bath.

Some colonies responded to the treatment quickly. Others were not visibly affected for two weeks or more. Two or three died. Some colonies took backsets and had to be treated over again. At present (Nov. 26) the apiary of 305 colonies seems all well, but we expect to have to fight the disease again next spring. We don't fear the malady as we did at first. I believe it to consist of a fungous growth on the outside of the bees similar to mildew on the grapes. The sulphur spray does not kill the brood—at least not much of it—unless used more freely than necessary.

Use sulphur often and with discretion, and I believe the disease can be cured every time. The time to spray first is when the first diseased colony is discovered.

In regard to this disease I have arrived at some conclusions by intuition or imitation in watching the farmers fight pests of all kinds—mildew, red-spider, and the like. They blow sulphur among the branches and leaves of the trees when the heat of the sun ranges between 90 and 110 degrees. It is claimed, and I believe it is true, that the sun cooks a kind of sulphurous gas out of the diffused sulphur that means death to these parasitic plants, bugs, lice, mites, mange, itch, ticks, etc.

I notice that the sulphur spray in the

hives, and all over the bee-yard for that matter, seems to do more good during the hotter parts of the day and very little or no good when the temperature is cool (below 80°). We blew the sulphur all over the ground, hives, and dead bees. The apiary smelled like his Satanic Majesty's proverbial palace; and I tell you the disease began to disappear at once. Now please don't imagine that it takes a barrel of sulphur, for we did not use ten pounds. I dare say we wasted part of that.

We need some special machine for the purpose of putting the sulphur in the hives, or possibly a different-shaped nozzle to attach to the machine we already have. This is strapped on a man's back and worked by a hand lever. But the builder designed it for sulphuring vines and trees, and not hives. When we blew the sulphur on the brood we could see minute grains of sulphur in the cells. We killed the brood, and the bees were very reluctant even to clean out and use the combs for any purpose. Still, the light fine sulphuring did no harm that we could discover. Our bees began to build up and get strong right away.

We have increased from fourteen weak, rundown, poverty-stricken colonies to 305 good colonies, and have 560 combs of honey to feed them upon if times get hard with the bees next May or June.

Selma, Cal.

THE SULPHUR CURE EFFECTIVE

BY WASHINGTON D. KEYES

Early in the spring of 1914 I ordered a pound of bees with queen; put them in a hive with drawn combs, and as soon as the brood was three-fourths developed a large portion was attacked, and turned, first pink, then brown, and finally black on the sides of the head, and died. They were cut out of the cells and thrown out on the ground; and when the young bees began to hatch out many of them could not fly, and fell on the ground, crawling around as if they were crazy or blind. This kept up all summer,

and the colony remained weak; but late in the fall I bought powdered sulphur, sprinkled it in the entrance, and on the alighting-board. I took off the cover and sprinkled the sulphur on the tops of the frames and between them; covered the hive up, and in a short time the disease disappeared. The colony came thru in good shape this spring, and is one of the best colonies in my yard—perfectly healthy, strong, and industrious.

Wilksburg, Pa.

WET COOL WEATHER FAVORABLE FOR THE DEVELOPMENT OF THE DISEASE; GOOD WEATHER A CURE

BY E. J. LADD

In looking over my records I find that bee paralysis, or *Nosema apis*, has never shown up but that, on a *corresponding date, weather conditions were bad*. For instance, in 1915, when at its worst, a record shows

continued rain for weeks, and tomatoes and potatoes blighting. In 1912 I find hives A, V, E showing paralysis, weather condition bad, *potatoes blighting*. In 1908 I find hives 10-a, 12B, and G all showed slight

paralysis; weather bad for a long time. In 1912, all recovered when good weather returned; the same in 1908, but very slowly. I now find in each of those hives eastern Italian queens had been introduced the year previous. In 1907 I lost one by paralysis, weather bad. You by this time must have got the idea this paralysis, or *Nosema apis*, is, beyond doubt, brought about by weather conditions, and by *that alone*. Some, evidently, are more resistant; but I'll bet you that *wherever* it showed up you will find that weather conditions were bad, which, if long continued, would get the bees to a fare-you-well. Two original eastern queens are here today, in hives full of healthy

brood. *Early in the season they lost their colonies when the weather was bad; but when the weather became good, trouble disappeared.* Everything was all right, and is yet. It was a costly season—not a pound of surplus. I just finished feeding the whole apiary. Isn't it possible that *Nosema apis* is a severe and malignant type of paralysis brought about by adverse weather conditions? Bad weather is prevalent in Isle of Wight too.

Fungous growth attacks insects. Isn't it possible that either *Nosema apis* or paralysis is a fungous growth attacking bees when weather conditions are right?

Portland, Oregon.

ARE BREEDERS OF UNTESTED QUEENS GUILTY OF SENDING OUT A MAJORITY OF THEIR STOCK UNTESTED?

BY L. E. WEBB

Editor Gleanings:—If you will pardon a lengthy communication, there are a few things which certainly need a little jacking up in the journals in the interest of the small beekeeper, or, rather, in his protection in regard to queens. I want to give you my experience this year, which has proven conclusively that the average small beekeeper ordering "untested queens" is merely ordering hybrids.

Last year I ordered eight untested Italian queens from several breeders, and not a single one was purely mated. A percentage like that shows to me that breeders are sending out queens that they *know* are improperly mated, under a reduced price as untested.

I had eight this year and three last year, and not a single pure queen in the eleven. In the meantime I have the only Italian bees in this section, being surrounded by blacks; and this year I mated ten queens, and eight mated pure and two cross. That being my percentage, it certainly looks as if a man ordering as many as eight in a season ought to get a few pure ones, any way; so it is evident to me that many of those queens are known to be improperly mated.

Now, the journals do not take up this matter strongly enough—probably for fear of hurting some one's reputation or feelings, and in the meantime hundreds of small beekeepers are suffering for it.

I know and you know that if you were to get eight queens in a season from big breeders, even tho untested, you would get a part pure, any way, or any other big beeman would; but it is the little fellow who needs

only a few, and whose dissatisfaction can't amount to much, inasmuch as he isn't well enough known to use any influence, and could get no voice thru the journals; or, if so, it would be censored down to where it wouldn't have the straight-from-the-shoulder effect; and it is the very ones who palm off these inferior queens under pretense of untested that get large amounts of publicity and who contribute articles, get free advertising in a way, etc., thru the journals, and the little fellow gets it in the neck if, perchance, he happens to be impressed with the talk in some articles and invests in queens.

It is high time some sort of strenuous campaign were commenced in behalf of the beginners, as, of course, they mean the future business.

There are plenty of men caught who never say anything, and of whom you do not hear; and it seems to me that if a man sees an advertisement in GLEANINGS or any bee-magazine, when ordering even an untested queen, he should at least have a chance at getting a purely mated one, and not one that failed for the tested class.

Of course, a thing like that can't be proven; but common sense tells us that, out of a given number of queens, some would be mated properly, or, in other words, if breeders mated as in my case eight queens before getting a pure one, then tested queens would be pretty scarce.

It is apparently a small matter, and yet the very business itself rests on it; and, aside from my experience, I can name a beekeeper who secured twelve "tested" queens, four of which proved to be hybrids.

Of course, a breeder can't guarantee a really untested queen; but this practice of testing them and finding them mixed, and then sending out as untested, should be hit hard; and now ask yourself the question, under any reasonable circumstances, is a man due to get (in two seasons) eleven queens without getting a few purely mated ones?

Morgantown, N. C.

[This seems like a severe arraignment of one or two and possibly more queen-breeders. Perhaps our correspondent happened to get a very bad lot; but he should not happen to get *many* such bad lots. We cannot believe the charge can be laid against the majority of our queen-breeders. As a matter of fact, we know there are some queen-breeders in this country whose untested stock will run from 99 to 100 per cent pure. There may be others who are more careless, and allow their mating-yards to be in localities where there are many black bees. This is neither fair nor square. If we know it we will not accept advertising from such people.]

It goes without saying, that a large percentage of untested queens should be pure—not less than 75 per cent. Anything short of that ought to be replaced until the proper percentage is reached.

After all, it is a case of the survival of the fittest. The queen-breeder who continues to send out mismated for untested, or scrubs, will not get any repeat orders, and it will be only by extensive advertising that he will be able to get any new business.

Such extensive advertising unsupported by repeat orders will leave him no profit, and he will be forced out of the game. It follows that the man who has been in the field for years, and gets repeat orders year after year, will have his locality so thoroly Italianized that there will be no blacks in the vicinity.

We shall be glad to hear from others as to the untested queens they have received, and the percentage of pure matings. If any of our advertisers are in the habit of placing their mating-yards where there are many black bees, we shall feel compelled to reject their advertising of untested stock as soon as we know it.

Perhaps the solution of the difficulty would be to advertise only warranted stock; but that would open a way to fraud on the part of the customer. He could claim that many of the warranted queens sent him were impure, and ask for a replacement whether the facts warrant it or not. After all, it seems fair to sell untested stock with the understanding that at least 75 per cent of it shall show up pure; tested for exactly what they are, and so on up to the select tested and extra select, and breeders and extra breeders.

Last year we purchased from a prominent queen-breeder 100 untested queens, as we were short of stock at the time—that is to say, our own colonies were becoming queenless. We put them in the hives, and every one of those colonies showed up pure mating, notwithstanding the queens had been sold to fill orders.—Ed.]

BEE CULTURE AND HONEY-MARKET CONDITIONS IN LOUISIANA

BY J. F. ARCHDEKIN

At first it was hard to credit the stories that were told me about the possibilities of beekeeping in this section. Being from Missouri I had to be shown; but the showing has confirmed the stories.

This locality is swampy; and a southern swamp has to be seen and felt to be appreciated. Almost every conceivable kind of tree, bush, and flower grows in them, and they contain an immense assortment of insect, bird, and animal life, ranging from the almost microscopic redbug, or chigger, which makes itself felt continuously, to alligators twenty feet long. It is a naturalist's paradise; and mosquitoes! they are simply terrific. In fact, I never saw so many kinds of insects in my life.

Bees are plentiful, bee-trees being exceedingly numerous. Owing to the favor-

able conditions a bee-tree is permanent when once established, and will exist for years if left undisturbed. People are constantly telling me about bee-trees they have known of for years. Just the other day a man mentioned a tree he found eight years ago. I myself saw two trees cut for bees, not over sixty feet apart. Conditions here are very favorable to bee life, there being absolutely no disease with mild winters, and a continuous honey-flow lasting seven months of the year. The wild bees swarm, and during the spring flow wild swarms are seen almost daily.

In spite of all this, bee culture has been neglected to a great extent in this state. While there are extensive apiaries, here and there, over the state, they are comparatively recent in establishment, as it is only in late

years that the industry has been given much attention. Beekeeping is now in process of development as an occupation; and in the future this state is going to rank well to the front in honey production.

In this section there are a few progressive beemen, and a lot who are not. There is one apiary of probably two hundred colonies near me, all in box hives. Those who are progressive are mostly beginners, so that experienced beemen are scarce.

The country has in past times enjoyed some measure of prosperity; but all that has disappeared, and the people are now very poor. Nearly all of the best people have left, so that large tracts of once productive land are abandoned. The principal crop is cotton; but the farmers have planted one crop after another of it without doing anything to replace the fertility taken from the soil. Consequently cotton farming is not profitable any more. I have been talking alfalfa and red and sweet clover to them; but the seed costs 20 cts. a pound, and they balk at that. Wheat will do well, but the farmers are not progressive enough to take up any new crop. In fact, the only people who are prosperous are beekeepers.

The honey market here is very poor. At one time last summer the finest tupelo honey sold in New Orleans at wholesale at 42 cts. a gallon. There are several causes for this condition. In past years all the honey marketed was taken from bee-trees and box hives. The comb containing bees, brood,

and honey was mashed up and strained, and the product characterized on the market as wild Washita honey. From all accounts it was a villainous compound, and prejudiced the dealers against all honey offered them. Even yet they make no distinction in price, and don't know the difference between extracted honey and this other stuff—I mean the dealers in New Orleans.

Another trouble with the commission dealers is that they have been accustomed to holding up the consignor of cotton or any other commodity, and they are inclined to follow up this policy in handling honey.

On the other hand, they claim that the European war is causing the market to be so low. No doubt it is causing much honey to be sent here from South America and the West Indies that formerly went to Europe. This condition will be only temporary, and will, no doubt, disappear soon after the close of the war. I don't see how the producers of this honey can break even at the present prices, after paying transportation charges, commission, and storage.

The southerners do not eat honey to any extent, and consequently there is no local demand for it; and it must be sent to the northern states for consumption.

This is probably the main reason for the market being so dull. I am fortunate in having a market in my home state for my honey, and have not been forced to sacrifice any of our crop.

Bordlonville, La.

ANNUAL MEETING OF WESTERN NEW YORK BEEKEEPERS

BY WILLIAM F. VOLLMER, SECRETARY

The annual meeting of the Western New York Honey-producers' Association was held at the American Hotel, Akron, N. Y., Dec. 14, 1915. It was very well attended considering the weather conditions. Many more would have attended had there not been so much snow.

After reports of the secretary, treasurer, and delegates to the state association were read and accepted, a suggested constitution was read and adopted. As the weather for two years has been bad on the day of meeting it was decided to hold it in November instead of December as before. Several of the speakers were unable to be present on account of the weather and other reasons.

We had Mr. J. Roy Lincoln, of Niagara Falls, with us, who told of his method of making increase, which was 100 per cent perfect. His method, very condensed, is as follows:

When bees are strong enough to swarm naturally, place all the brood except one frame and queen above the supers above an excluder. When cells are started this top story or nucleus is set off on a new stand, provided the stock was satisfactory for raising queens from. If not, a desirable cell or queen may be given to this nucleus or nuclei, as the case may be. After the honey crop is taken off twenty-four hours, exchange the nucleus and the parent hive. The latter is generally overflowing with bees at this time.

The flying bees or old bees seem to get added vigor by having a young queen in the hive, and seem to work harder and wear themselves out getting the nucleus stocked with brood. This means young bees for winter, which we must have to have a fair measure of success. Thus both colonies are in the pink of condition, with young bees

and plenty of stores. It is rather important, in exchanging, that the bees be not excited, as that might cause trouble in their uniting.

Several members seemed to think that sweet clover has a great promise in store for those who take advantage of the opportunity it gives. The secretary told of the different ways of disposing of the honey crop; namely, by jobber, wholesaler, retail

grocer, and direct to the consumer. He said that he thought the greatest good for all concerned was by the direct-to-the-consumer plan. In many cases this is impossible. Mr. D. C. Hubbard, of Wyoming, told of his views of marketing. Several other questions were brought out and discussed, after which the meeting adjourned. All reported having had a fine time.

Akron, N. Y.

THE HANDY ESCAPE-BOARD

BY E. F. ATWATER

The writer was long skeptical in regard to the bee-escape, but for some years has been a convert to its use for removing comb honey from the hives. We formerly made a practice of putting three to six supers above each escape, but found that there is likely to be some fighting when supers containing many bees from several colonies are piled above a single escape-board. Too often the escape will be clogged with dead bees, and the supers will not be free from bees when we wish to load them on the wagons for hauling home.

When the supers are from one colony it is usually safe to put as many as necessary above a single escape. Possibly some of the clogging has been due to death of some of the bees from suffocation.

The chief objection to the Porter escape, in the past, has been that it was not made double, like its European imitation, so as to allow more bees to pass, and cut in two the liability of clogging; but the new double Porter escape solves the difficulty and is very satisfactory. We had heretofore used the escape but little for removing extracted honey from the hives, but are now satisfied, after trial, that where it is possible to be at a yard several hours, or over night, before beginning to extract, it will pay well in several ways to use the escapes in order to provide all the supers of honey that can be extracted in the morning. This is especially important here in the West, with its cool nights and mornings. When brushing and shaking bees from the combs for the morning run, the bees become greatly aroused, which is not very agreeable to the help or to neighbors.

Afternoons there is usually no difficulty, and it remains to be seen whether it is worth while to use the escapes for the afternoon run, altho our helpers have formed a decided opinion in the affirmative.

When removing comb honey we prefer to remove all burr-comb from the supers before putting them above the escapes.

In our practice I usually go along the rows, examine the comb-honey supers, and stand on end at the rear of the hive all supers ready for removal. Another man follows and scrapes off all burr-comb (worse and more of it here in the West), while a third man puts them above escapes and sees that all are tight and lids closely fitted to prevent robbing.

For taking off extracted honey we believe that the "new" ventilated escape-board, made chiefly of wire screen, is quite an improvement; but it is a mistake to suppose that the honey from supers so removed will be nearly as warm as when the bees are brushed from the combs. It is the actual contact with the warm bodies of the bees that is the chief factor in keeping the combs warm. When using the escape beneath two bodies of extracting combs crowded with bees it is particularly desirable that the escape be doubled—that is, that it have two sets of springs.

The idea of the ventilated escape-board is not so new as might be supposed. The old La Reese escape embodied that feature, and in actual use it is second only to the Porter.

We have several uses for the ventilated escape-boards, and find them so useful that we shall make many more of them.

For moving bees, in weather not too hot, and where circumstances make open moving undesirable, simply tack a ventilated escape-board on top of the hive, or one above and one below.

We carry a few of them with us at every trip with the wagon; then if we find a foul colony a screen is tacked above, the hive stapled ready for moving, and the entrance closed. We leave the ventilator open. Then the last thing we do at that yard is to close the ventilator and load the diseased colony on the wagon, when it goes home, where it can be watched and treated safely.

When the swarming season comes, there are several plans involving their use. A

method which has always worked well with us is as follows:

For extracted honey, take out the escape and put in its place a piece of queen-excluding metal. Find the queen in the colony which you fear may swarm, and set her, with the frame of bees on which she was found, after destroying all queen-cells, if any, into a new hive-body. In the place of the frame removed, put an empty comb into which you have poured some water. Put the escape-board over the old colony in place of the lid and nail a strip of lath over the entrance. Now put your new hive, containing the queen and her frame of bees and brood, on the escape-board, and fill out the hive either with worker combs or with frames filled with full sheets of foundation.

There must be an entrance to the upper body. This we provide by opening the

ventilator which we have in all bodies, but may be provided by shoving the upper hive forward, then laying a strip at the rear. In ten days you may take away the lower hive of brood, which has been well cared for by just enough bees returning thru the zinc. If you wish increase, set off the lower hive and give them a queen. The brood is all sealed, as in the Alexander plan. Or the brood may be divided among nuclei which you wish to build up.

If no increase is desired, the hive of brood may be left below until all bees have hatched; or at any time after ten days from treatment it may be put above for an extracting-super, after destroying cells, if any. A few colonies may prepare to swarm a second time, when the process may be repeated to advantage.

Meridian, Idaho.

LAYING WORKERS CAUGHT; A LOT OF 'EM

BY M. JOHNSTONE

Mr. Chadwick, on page 837, Oct. 15, states that he has never seen a bee known as a laying worker. In the same note he expresses a doubt as to plurality of laying workers, and also doubts that any one knows. Now, I wish to take issue with him right there. There is also the biological issue, as Mr. Chadwick, page 841, of the same issue, states his disbelief of a developed drone without fertilization. As to the latter point I cannot see that there could be a possibility of fertilization where there is a multiplicity of laying workers. In fact, my experience leads me to believe that practically every laying worker in a bad case of a colony developing laying workers is likely to possess the power to lay.

To the end that every one interested (and what lover of insect life is not?) may observe the phenomena for himself, let me relate what I saw. The science of bee life was new to me, and one day I observed in a small nucleus a number of eggs in several cells. I could find no queen. I searched every comb carefully for her, and in the process of searching I observed that some cells contained a large number of eggs. I devoted the afternoon of that July day to observation of that colony.

I don't know just how the inspiration came, but it struck me that the laying worker or workers being short of room might lay again in the same cells were the eggs removed. I did so with a pin, emptying several cells. Then the comb was replaced. I lifted it gently out in possibly ten minutes (I am not sure of the time),

when, lo! I caught a bee in the act of laying. I crushed her and removed the eggs and replaced the comb. After a short time I gently removed the comb again and caught several laying again. Again the same result was obtained—a third time.

I certainly saw these, and reported so in GLEANINGS at the time. I believe, also, that any one sufficiently interested could perform the same experiment with the same result.

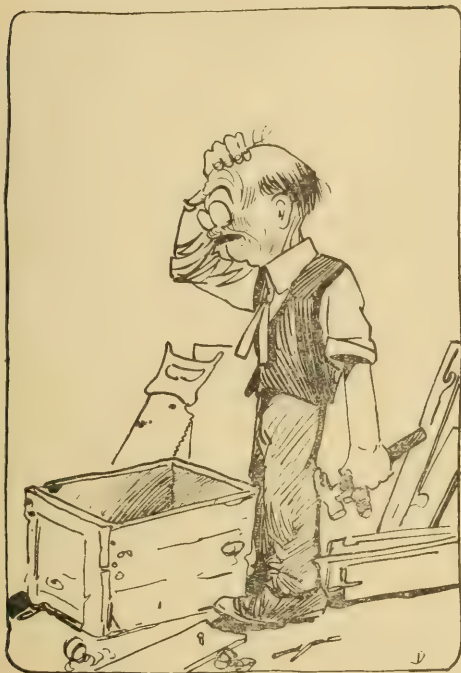
I am writing this to induce others to try it next season, and I hope they will report success or failure.

Given a bad case of laying workers, remove the eggs from several cells; return gently; remove in ten or fifteen minutes, and the laying workers may be caught in the act. Of one thing I am certain—you will never forget the appearance of those discovered in the act.

Cayuga, Ont.

[There is probably not one beekeeper in a thousand who has ever actually seen a laying worker. Unless one neglects his bees there probably will not be found a colony of laying workers in the apiary. When a colony is queenless for a month or so, it may or may not develop a case of laying workers. With regard to the question whether there are more than one or two laying workers to a colony, that question was settled long ago. In back numbers of GLEANINGS, and, in fact, in the *American Bee Journal*, there is any amount of proof to show that if there is one laying worker in a hive there may be many of them.—ED.]

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Make your own hives if you will, but don't try to make one out of a grocery-box with a meat-saw and a claw hammer.

Winter Pictures

BY GRACE ALLEN

Gray clouds that creep across the sky;
Grim icebergs haunting northern seas;
A far-off war where countless die
And men in mountain passes freeze;
The city streets, a frosty glare
Where huddled poor folk cough and wheeze;
The country, desolate and bare,
Where winds may stalk it as they please;
And while they howl—a dismal choir—
Within a cottage hid by trees,
A man sits by a glowing fire,
Reading a book on bees!

Wintering on Two Sets of Combs

I have wintered my colonies with two sets of combs ever since I kept bees. I use ten and fourteen L. frame hives, some single and some double-walled. I put a zinc sieve under the single-walled hives to let the dead bees and dirt drop out of the combs. I want little honey in the bottom combs, and I want six combs of solid honey or an equivalent amount in the upper hive.

I pack dry empty combs as tightly as I can against the side of the hive. Then I

lay three or four half-inch strips across the top of the combs to give the bees a passage between the combs; put the matting from tea-chests over them, put a box on top that telescopes over the top of the hives an inch, and fill it with six inches or more of dry leaves or planer shavings. Dry wheat chaff is the best packing material I have ever used, but I cannot get it here.

Where the entrance is the full width of the hive I stop up the middle, leaving about $2\frac{1}{2}$ inches at each end open, and put boards in front of the entrance so that light cannot get in to call out the bees while it is still too cold for them to fly.

My top-bars are $\frac{3}{8}$ inch thick by $\frac{7}{8}$ inch wide. I think the thick top-bars would not be suitable to winter bees in double-story hives. In cold weather the bees would not move up thru the narrow opening between the frames over the amount of wood they would have to cross.

New Hampton, N. Y.

E. D. Howell.

The True Boneset

Gleanings for Oct. 15 contained some excellent illustrations of wild flowers noted as honey producers. One, called boneset (*Eupatorium perfoliatum*), is not boneset, *Eupatorium perfoliatum*, but is another species of eupatorium. Here it completely covers all closely grazed pastures, lying on wet black lands, and is an important honey-plant some seasons.

Boneset grows only in the vicinity of springs, in sandy stray spots; has but few flowers, and bees do not seem to work much on it. The stems of boneset seem to come thru the leaves like the red honeysuckle. The leaf has no petiole. For reference I refer you to Lloyd library, Cincinnati, Ohio, which I believe is the most complete collection of botanical and allied subjects in existence.

Elk City, Kan.

Dr. J. T. Blank.

[Mr. Crane has called attention to this in his department.—Ed.]

Introducing Queens: Are They Known by Their Odor?

In an editorial headed "The Smoke Method of Queen Introduction Not Always Successful," in the first September number, you say "Oversmoking or undersmoking will lead to failure." I believe you are wrong. You might easily fail by not smoking enough, but not by smoking too much.

I have smoked the bees in a particularly savage colony until half of them were on the floor in a state of stupor, and the queen with them for all I knew, but she turned up laying all right. The bees were none the worse, so far as I could see.

I always use plenty of smoke. I have used this method for thirty years, with one

variation: I do not run the queen in at the entrance, but drop her among the bees at the top of the hive. Then I am sure that she is right in the thick of the bees and smoke.

I have just been thru a lot of hives that had queens given them by the smoke method, and the queens are all laying—not one failure. I think any failures you have had were caused by not giving enough smoke.

Major Shallard.

South Woodburn, N. S. W., Aus.

Carrying Hives in a Touring Car

I have used my five-passenger automobile to carry empty hives, combs, etc. I have four leather straps made with buckles, the straps of the right length to fasten two hives on each running-board.

I next remove the back-seat cushion, setting two hives crosswise on the seat. Then by removing the foot-rest I set two hives lengthwise on the floor, and then tier the four hives as high as I think best. By running a rope around them it makes quite a compact pile.

If you follow this plan and want a neat-looking load leave the back curtain and the top on the machine. If one does not have an old car on which a special body can be fitted, a new car can be used in this way for carrying quite a load. I can carry 22 to 28 hives, by using all the room except the driver's seat.

Colo, Iowa. D. E. Lhommedieu.

Winter Protection in Virginia

It began snowing here Dec. 11, and the snow was 18 inches deep in less than fifteen hours; then it cleared up and turned warmer, but not warm enough for the bees to fly. On the 13th the wind blew hard and cold, and I noticed a few dead bees in front of one of my hives, and the next day I found more dead ones, and among them was the queen. I took the cover off, thinking all of the bees were dead, and was surprised to find a nice cluster of bees right over the entrance, and they seemed to be in a normal condition. The cluster was a good-sized one, as it covered the ends of six frames, and they had a large quantity of stores. I have been noticing a restlessness about this colony all the fall and winter. I haven't any of my bees packed, but have sacks between the double telescope cover.

Do you think it would be profitable to pack bees in winter cases in this locality? What do you think was the trouble with this one colony?

Stockton, Va. Francis W. Gravely.

[In localities similar to this it has been customary to provide no extra packing except what could be inserted outside the combs. It is impossible to give a definite answer as to the advisability of winter cases. They might prove an economical in-

vestment one year and an expense another year if the extra labor is considered.

These bees coming out may have been old ones that could not live any way. Or the stores may have been to blame. This, however, would hardly explain the death of the queen. We are inclined to believe that the death of the queen was incidental, and not connected with the disturbance.—Ed.]

Bees Dying Off by Handfuls during Mid-winter

My dear Mr. Root:—My bees are dying off by the handfuls. Can you tell me what is the matter and what I should do? I am wintering them outdoors in single hives, but where the wind does not strike them. The hives are new, and my bees are kept dry. I left plenty of honey for them to winter on, I thought.

How do you feed bees in winter?

Clintonville, Ohio. E. W. Mendenhall.

[We can't imagine what can be the trouble unless your colonies went into winter quarters too weak. In the fall there should be at least eight or nine frames well covered with bees, and, better, the full ten frames. It is possible that last fall the queen died, and the colonies got weaker and weaker, and the cold wind that has been blowing has possibly been too much for them, and so they are dying by the handfuls. If there are no young bees in the previous fall the old bees would begin to die off very rapidly.

It would do no good to feed them now, and the only thing we can suggest is that you take the bees as they are into your cellar, making the cellar dark. This may be the means of saving them. If you have two or three colonies that are weak unite them together after you get them into the cellar.—Ed.]

Long Cases for Wintering a Row of Hives Not Practical

Information has been requested in regard to winter packing-cases; and altho you ask from those having experience with both kinds I make bold to state my experience, altho I have used only the two long kinds. Some 35 years ago, when lumber and packing were cheap, I used to pack all my bees; but I simply could not keep house and have any more than three hives in one box. When I had four, five, or more hives side by side in one box the way the inside colonies butchered one another in the spring was simply scandalous. I even painted large blotches of different-colored paint over the entrances. This helped somewhat, but did not cure the evil entirely. I sawed all my long boxes in two, so there would be no more than three hives in a box.

I consider two hives well packed worth as much as three hives wintered in the cellar.

West de Pere, Wis. Paul Scheuring.

[This confirms our statement made on page 921, Nov. 15th issue.—Ed.]

A. I. Root

OUR HOMES

Editor

The land was corrupted by reason of the swarm of flies.—EXODUS 8:24.

CREATION; HOW MUCH OF IT IS STILL GOING ON?

Ever since GLEANINGS was started there has been more or less speculation in regard to the honeybee. Were they originally made just as they are now, or have there been changes? Let me digress a little.

I suppose every one of our readers has been annoyed more or less by the common housefly. When you are especially busy, perhaps writing, a mischievous fly will alight on your hand or perhaps on your nose. You impatiently brush him away, but he comes right back and then you have the same thing enacted over and over again until you lose your patience and make up your mind to kill that particular fly if you can, so as to have a little peace. May be you are running an automobile, or having something to do with it. Perhaps you are stopped in the road away from home somewhere. You are obliged to pull a complicated machine apart more or less. It may be a hot day, the sweat dropping from the end of your nose as you stoop over to twist yourself into a tiresome attitude to get at a defective point. Just at the critical moment a fly gets close to your eye. With greasy fingers you try to drive it away; but it persists in coming back. It would seem that flies do this just to be contrary and because they delight in pestering anybody at a time when he especially does not want to be annoyed by a fly or anything else. We have all heard people talk about "saucy flies;" and they really do seem to enjoy bothering one when they find out they can do so. Now, may be I am uncharitable in regard to flies; but I have not got through yet. They seem to have learned just how far they can go and not get hurt. If you attempt to strike them, unless you are very quick, and circumstances are favorable, a bright frolicsome fly will laugh at your clumsy effort. How does it know, or how does it learn to escape almost any blow you can give it with your hand? It cannot have had a very long time to learn by experience. In fact, I am not sure but the fly would behave much the same way the very day it learns to use its wings. It is not human beings alone that it annoys. Every farmer knows how flies at certain times of the year pester his horses and cattle. Of course the horse and cow can brush the fly away with their bushy tail, and they can bite too; but I think the fly dodges and escapes. Now to my point:

For a few summers past, not only the city but the town and country have been waging war on flies; and the number has decreased, I think, everywhere most perceptibly. Some inventive genius, I do not know who or where, has given us the little "fly-flipper," and I have several times thanked God for it, and for the good man (or woman) who invented it. By the way, it occurs to me that something was said in the bee-journals years ago about a wire-cloth paddle instead of a wooden paddle to knock down an angry bee that keeps following one all over the premises. Can any of the veterans tell us anything about it? Over in our home (and it does not matter whether the home is in Medina or Florida) it is a rare thing to see a fly buzzing anywhere in our well-screened rooms. Mrs. Root has the credit for that, at least mostly. Well, at my table in our big office, flies trouble me so much when working on my correspondence that I have been obliged to use sticky fly-paper. This also has been a great boon to humanity. But this summer I have not used any sticky fly-paper at all. I have a very light neat fly-flipper; and now if a fly ventures to get on my hand or face or bald head, I hit it a clip. At first the fly begins his old antics of dodging and then coming back, but when I get hold of the flipper I "get him." At the first clip the fly seems greatly surprised and astonished. I think I have acquired some skill—yes, skill even in my old age, in killing flies just as they approach my table. A very little clip lays a fly out. It takes some time, I admit; but when I am busy reading letters a little exercise does me good. I have got so I can swat a fly every time, even before it gets to work at its old antics, because it does not consider that I now have a new invention to circumvent it. The dodging scheme that he has used, and acquired such skill and proficiency in using, is now knocked out, and the fly cannot understand it. Now for my point:

How many years or centuries has the fly been in learning to dodge a human hand? And while I am about it I might as well ask how many years and even centuries has it taken the *bee* to learn the trade of making the beautiful honeycomb? And will the fly eventually learn to dodge the fly-flipper as it has heretofore dodged the human hand?

Do not plants as well as insects modify their habits by what we may call ages of experience?

Bananas do not bear any seed. May be you have heard bananas never grow from seed; yet growing bananas is one of the greatest industries in the world. We are told that the banana stopped bearing seed because people kept propagating from suckers. As nobody made any use of the seed, if it ever had any seed, it stopped yielding it. In the same way we have a seedless orange, or almost seedless, and other plants have been following along. Now, will the fly learn after a little to dodge the wire-cloth weapon as it dodges a folded newspaper or a flat stick? Who can tell?*

In waging war against redbugs, mosquitoes, and infectious diseases, such as the foot-and-mouth disease, and I might go on indefinitely, it may behoove us to look into this matter a little more than we have done. In other words, did the honeybee come from the hand of the loving Creator with all its wondrous skill? or have centuries of practice, and, you may say, the "survival of the fittest," had something to do with it? And then, again, did this mischievous fly possess the same skill from the creation down to the present time, or did it *gradually* learn the trade of dodging so it might keep on annoying at a time when we wish so *vehemently* he were at the other end of the earth?

My impression is, in closing, that the great Father has for the best of reasons ordained and planned that we should turn in and *help* wherever it is possible to make things better in this busy world of ours.

"THE GREAT ARMY OF THE UNEMPLOYED."

On page 780, Sept. 15, I have some kind words to say in regard to a tramp, or at least one whom the world would call a tramp. I think now it may be well to tell another experience. A few mornings ago a tolerably well-dressed and able-bodied man came to Mrs. Root saying he wanted something to eat. She told him to go into the lumber-yard, that they would give him work and then he could buy what he needed. She did this because I had told her not to give tramps food. Well, because he said he

* How many ages or centuries does it require for the fly to acquire the skill necessary to evade the flipper? And, again, do flies and bees remember or inherit the piled-up experience of their ancestors? Do you and I, dear reader, occasionally have glimpses of things our fathers and mothers learned before we were born? Some years ago I visited Waterbury, Ct., and I found there a few old gray-headed people who could tell me where my father passed his boyhood days; and as I looked over the surroundings and tried to recall what he had told me of his boyhood, it almost seemed as if away back in the past I recalled glimpses of the landscape and surroundings; and yet it was the first time in my life that I ever visited the place.

could not very well work without something to eat she gave him a fair meal. He asked for coffee; but she told him we used postum cereal, and he said that would do all right. Instead of going to the lumber-yard, however, he went to my daughter's, next door, and asked if he could not have some *real* coffee, making complaint about the cereal coffee. Not knowing he had had a fair breakfast she gave him something more. Then he asked if he could not do some work for her. She told him he might mow the lawn; but when he asked how much pay he was to have she told him a man came around once a week and mowed it for 25 cents. He replied that *he* was not going to mow any big lawn like that for 25 cents, and then he put off. After he had bothered two busy women, and had eaten two breakfasts without charge, he was not willing to work for the regular market price. I "scolded" both of the women for encouraging and putting a premium on the whole tramp business.

Now here is something so *sensible* that I have about decided to have a lot of slips printed; and when somebody writes me a letter about "the great army of the unemployed" I will send them this clipping by way of reply. Read it, and see if it does not just about "hit the nail on the head."

CHATS WITH THE BOYS.

Not enough of him to go round.

I hired two boys. One tried to see how much he could do, and everybody wanted him. There was not enough of him to supply the demand. He was kind and helpful every way, always cheerful, and ready for any job. He is now getting \$1200 a year.

The other fellow tried to see how little he could do. If I sent him to the field to work, he would find a berry-patch and spend a good deal of time there, or loiter under the bushes and try hard to see how little he could do, and now he is hunting for jobs, and the jobs always shy at the sight of him.

I have an old friend about my own age who started out to make his way in the world along in the 50's of the last century. Money was scarce, and work was hard to find, but A. J. gathered himself together and started out. Now, there is a good deal of a boy when he gathers all in and takes the whole of himself along. Healthy, strong, willing, cheerful, honest, with plenty of gumption and common sense, he makes quite a combination, and he is bound to win. A boy mourns because he has no money when nine-tenths of his capital is vested in himself.

Well, A. J. started out. He had \$5 which he had earned by the hardest work. He heard of a job which he could have in about ten days. But if he went to the hotel his \$5 would not last long, so he struck out for the country. He approached a good-looking farmhouse and asked if he could stay over Sunday. "No, sir, this ain't a hotel and we don't keep tramps."

"But I can pay for my board."

"Well, go in and see wife."

He went in and saw a poor over-worked woman and asked if he could stay over Sunday.

"Why, yes, I will try."

The woman had her hands full, and a squalling,

dirty-faced laly was very much in evidence. Having a little candy in his pocket, he picked up the little fellow and quieted him, and soon was on the best of terms with him. The mother started out to get some wood.

"Oh! let me go," he said; and he brought in two good armfuls. When milking-time came she took two tails out to milk.

"Here," said he, "let me have one. I am a good milker."

And so he was on the alert to help all he could. Monday came, and there was corn to hoe, and work in the garden along with the chores, and with outdoor work and helping the overworked woman, he made himself useful all the while.

When the next Monday morning came he asked the man, "How much do I owe you?" and the man pulled out a \$2.50 goldpiece and said, "I owe *you* so much, and would like to hire you for a year.—*Independent Farmer.*"

POULTRY DEPARTMENT

MY CHRISTMAS PRESENT.

Of all the Christmas presents I have received in over 70 years I do not recall any that gave me more real pleasure than the one I am going to tell you about. It came so entirely unsuspected, it was really one of my "happy surprises." No one of my many friends sent it, for, in fact, not a soul on earth knew anything about it or had a finger in the work of getting it up until it was presented to my astonished gaze when I was all alone out in the Florida woods. I did not even know that long days and weeks were at work getting it up for my especial joy and delight until the finished and complete creation was handed over to me—shall I not say direct from the hand of the kind and loving heavenly Father?

I have already mentioned a Rhode Island Red hen, blind in one eye, that laid right along a year ago thru November, December, and January, when the Leghorns and Buttereups were moulting and when eggs were 50 cts. or more. Well, I set quite a few of her eggs, and therefore found a dozen or more young pullets, pictures of their mother, when I reached here in November. Sure enough, like the mother they have been almost all laying clear up to Christmas, and, like the mother also, not one wanted to sit until December 14 (altho I was very anxious for some chicks to study and care for as soon as possible) and another on the 23d.

One morning I caught a glimpse of a soft fluffy red hen (or yellow, rather), rushing about for corn and water, with her feathers ruffled up and clucking; but supposing it was the sitting hen of the 14th I thought little about it until I found said sitting hen on her nest with no indication of having been off that morning. Once, later, I got a glimpse of her; but she was off in the woods before I could keep her in sight. I said to Wesley, "We must hunt that hen, for she might have more eggs than she could cover."

We both spent quite a little time, but had to give it up, and I concluded she was

only "making believe" she was "broody," as pullets sometimes do.

Well, on Monday morning, Dec. 27, I went out in the woods alone, thinking I might catch her coming off to feed, and I *did* catch her; but imagine my astonishment when I saw around her a perfect "swarm" of fluffy downy yellow chicks. The morning sunshine came thru the evergreen-trees and shrubbery, and there she stood, a proud and stately mother with her inquisitive brood scattered around her. I tried to count them, but they rushed about in the sunshine at such a rate that I was really unable to decide whether there were 16 or 17; and, to tell the truth, as I write we haven't decided even yet. I made 17 several times; but Mrs. Root declares that her accurate "auditing" shows only 16. Wesley and I finally located the nest and found three infertile eggs, so she must have laid 20 eggs (or 19?) before deciding to sit. From the activity and looks of the chicks she must have hatched them on Christmas day, and neither she nor the chicks had had anything to eat except what she scratched up in the woods for the lot, until the third day. They are now on a "bread-and-milk" diet, located right near our bedroom window, and we are going to try hard to keep the "happy family" entire.

By the way, there are quite a few "chicken men" (and women), as I happen to know, who read GLEANINGS. Well, may we not thank God that there is a place in the United States where (when we are getting old) we can go and see a hen steal her nest, sit on twenty eggs, and hatch 17 (or even 16) at Christmas time?

POULTRY-KEEPING IN FLORIDA.

The letter below explains itself:

Mr. Root:—We (our party) take the liberty of enclosing some questions touching the poultry business in Florida. Some of us expect to go down soon. We know that you are well conversant with the situation and that you are a Christian, and

hence give us, as far as you know, some reliable advice.

J. H. PARKER.

Magnetic Springs, O., Nov. 16.

Is there a demand for crate-fed poultry in Florida?

There is usually a very good demand, especially during Thanksgiving time and the holidays. My neighbor, Mr. Abbott, told me of selling fat *old hens* for over a dollar each, and they were not "crate-fattened" either. I think he delivered them at the large hotels.

What variety of poultry seems best adapted to Florida? Our idea is more particularly for egg production.

As you know, all the great egg-farms use Leghorns, both north and south; but I think a change is coming. Some time ago I got a few Rhode Island Reds so as to have some hens that would sit. Well, when the Leghorns did not lay at all, say in November and December, I had one blind "red hen" that laid, without wanting to sit, all through November, December, and January. I have now quite a few of her chicks, and they are giving me fifty-cent eggs, just like the mother.

Take a laying hen, put her in Florida, then take her to Medina, O., at which place will it cost more to keep her?

If you shut her up in both places it will cost more in Florida on account of the higher price of grain. If, however, you give her the run of the woods, as I do, it would take *less* grain here in Florida, for in Ohio she could not find feed in the woods in winter as she does here.

What do you think of a White Indian Runner duck-farm for Florida?

I am sorry to tell you that Florida people care little for ducks or duck eggs. When hens' eggs are forty or fifty cents, duck eggs sell very well at a little less; but in the spring no one seems to want them. Duck eggs are larger, and ducks lay right through moulting time, and I like them just as well as hens' eggs, especially when the ducks are *grain fed*. But people *will* have their notions.

Is there any good reliable poultry concern on the west coast of Florida from which one could buy reliable stock?

The best I can do is to submit the two advertisements below, which I clip from the *Florida Grower*, published at Tampa:

Single-comb White Leghorn and Rhode Island Red yearling hens, pullets, and cockerels, at \$1 each. Jersey Stock Farm, Trilby, Fla.

Single-comb White Leghorns. Pure bred, and mated for highest egg production. A year's test; the trap-nest the judge; then the best, then matings. Matings with records up to 245. Day-old chicks and eggs for hatching. None better. Wm. B. Moore & Son, Olga, Fla.

I know nothing of the parties above. You might also write Crenshaw brothers, at

Tampa, who deal in poultry-supplies considerably.

Do you consider Florida a good place to start a poultry-farm? and would you advise around and about Bradentown for the same?

Around Bradentown is a very good place while eggs are worth 50 cts. a dozen, as they are now, December; but last April they were down to 15 cts. for a short time, and not wanted at even that price. As yet, there is little or no "cold storage" for eggs (if I am correct) in any part of Florida.

What are the best things to grow for feed stuff for one's poultry in Florida, assuming that one has six or seven acres?

Dasheen, cassava, turnips, radishes, cabbage, lettuce, oats, and rye, to be fed green, and no end of other things. See back numbers of our journal.

What is a good thing to go with poultry in Florida?

I would grow potatoes, at least so long as you can swap a bushel of potatoes for a 100-lb. sack of corn. Raising green stuff for the fowls saves grain, and helps the egg yield.

Do you think that there is more profit in the raising of poultry in Florida than in Ohio?

That is hard to answer. If you feed grain, it always costs more in Florida than in Ohio; but a great part of the year *eggs* bring more here than in Ohio. Again, as I have already said, there is a big saving down here in the way of buildings, brooders, etc. Altho others down here may differ, I would and do raise chickens without any lamp-heated brooders.

In starting an egg-farm would you buy in Florida or in the North? By this we mean the stock to start with.

I would buy here to save expensive transportation unless it would be a few choice fowls and eggs so as to work into a good strain.

Is it possible to keep down the lice, insects, etc., in Florida?

This is easily done. If the roosts, nests, etc., are sprayed a few times a year, and the droppings are swept up daily, and carried away, we rarely find a trace of poultry insects, or parasites of any kind.

Is there any particular kind of house that you advise for poultry in Florida? We allude more particularly to a laying-house—an expensive house to start with. We aim to keep 500 laying hens later on, or part ducks—that is, Indian Runners and part hens, such as may seem best.

In southern Florida I would almost say, "The *less* house, the better;" in fact, I was at first quite successful with all of my poultry roosting in trees. There were some objections, however. Big owls sometimes take grown fowls out of the trees; and when you want them it *may* take a very

long ladder to get them. Besides, when we do have a bad storm, the chickens seem to prefer a shelter. Our five houses now have a good roof of shingles or roofing-paper; but the walls are mostly only poultry-netting, and even then the poultry prefer the trees during very warm weather. A lot of money is *worse* than wasted all over Florida in *tight houses*.

Do you advise the yard or colony plan for Florida?

If you want eggs, give them as big a run as you can. Our Ohio experiment station has just put out a leaflet showing not only more eggs but a considerable saving in feed by giving a wide range. Down here a piece of wild land seems to suit the chickens. We give an average of 100 fowls a run of three acres of trees, bushes, or weeds.

HIGH-PRESSURE GARDENING

APPLE-GROWING IN THE GREAT NORTHWEST,
WITH SOME KIND WORDS SPRINKLED IN
HERE AND THERE.

Our good friend Peter Henderson made quite a sensation years ago by writing a book called "Gardening for Profit." Later on he gave us another book called "Gardening for Pleasure." The two books have had a great run, and are selling yet to a considerable extent. The good brother who sends us the article below recommends "garden-ing" with a *four-horse team* and an appropriate cultivator, and he rather makes light of "garden-ing with a hoe." When he gets to be seventy or eighty years old he may have more respect for the humble occupation of garden-ing with a hoe.

BREWSTER FLAT, THE ONLY SPOT IN WASHINGTON
WHERE WE TAKE SWEEPSTAKE PRIZES ON APPLES.

Dear Mr. Root:—Another year has rolled around, and it still finds us on good mother Earth, and still living in the land of plenty and peace, the United States of America. You, undoubtedly, would thank God for this peace blessing, while I would thank also our President for his kind but forcible answers that "turn away wrath."

We are a long distance from each other—you in the South, where it must be warm, while I am in the great Northwest where it ought to be cold, and is cold. This morning it was two below zero, with about a foot of snow. In the mountains, eight miles away, it was ten below. This at this time is not much difference; but later it is generally twenty to thirty degrees colder in the mountains than here.

This is certainly an apple country, and the only pest we have to bother us is the ticks. If they once get on us, and begin to set in their prongs, they stay; and if pulled off they leave these prongs in the flesh, making a spot that itches awfully. But when we begin to feel one starting in on us a little turpentine, kerosene, or grease rubbed on the spot will kill the tick; and when dead it will let loose. They get on the horses; and if let alone until they develop they become as large as half an inch in diameter, filled with blood that they suck from the body. I understand that California has us beat "forty ways" in the abundance of ticks.

Over on the other side of the mountains, at Seattle and on, it seldom freezes, so by going some 70 or 80 miles west we must have nearly as warm and pleasant weather as you do in Florida. Here we have abundance of snow in winter, and rather dry in July and August; but at other times we have rain enough to grow an abundance of crops.

The great cry here is for irrigation-ditches, and we have them too. Millions of money are spent to

get water on to the land, and, of course, it is fine to be able to water when needed. But the land and crops are abused by use of *too much* water. This is because of people not using good judgment in irrigating. The overhead system is going to be the popular one, because then all parts of the land get the same quantity of water, and the land does not have to be leveled.

I noticed a letter in GLEANINGS some time ago from a Socialist. I thought he was very ungentlemanly and was lacking the gentle spirit now characteristic of the greatest nation on earth. Covetousness is the desire of the ignorant and indolent. The men who want nothing but what they earn are the very bone and sinew of this nation. They see opportunities on every hand, and simply say to themselves, "We do not want our neighbors' house or wealth, but are able to go out and earn a house or wealth just like my neighbor's or better." This principle shows equality, and a generosity that is progressive. But the man who advocates division of wealth and its comforts does not understand the true principles of manhood, and is drifting into the parasitic stage; and if we all would drift along that line we should become more helpless than our next best associates, the animals. The true American type of man will never call for a division of wealth, but will assert himself and take another spot on the broad acres of the United States, and there dig out a comfortable fortune too. The true American type of manhood would scorn a division of wealth as an insult. But the man who would take a division of a neighbor's goods would set an example that, if all indulged in, would make us a beggar nation.

You, Mr. Root, are setting one of the best examples of industry. You at the age of 75 are doing more good hard work than all the great army of hoboes in this nation. You dig in the garden, supplying not only yourself with luscious fruit, but hand them around to the neighbors. You *keep busy*. You find plenty of work, and you always will as long as you live. Industry is the making of this nation. Let every hobo, those that would call for a division of wealth, look to you in your industry and be inspired both of God and for the good of humanity. With the example you are setting, if followed out by every one in our land of plenty, not one person in this peaceful nation of ours would be in want. They would all be in comfortable homes, and plenty to eat and to wear. They would all be law-abiding citizens, and not be in the way of others. The man that would suggest a division of such industry should begin to think how they could most humbly apologize.

The few members of our human family are not great because of their religion or wealth, but because of good and wise deeds done for humanity.

To keep well depends on how we treat ourselves. We are really our own doctor. Eating the right kind of food and the right quantity with variations will keep us well all the time. Working or playing

must be indulged in for exercise, but must be indulged in only to correspond with our physical strength. Many a man has shortened his life by overdoing.

It "makes me tired" to hear you speak of that hoe. I never could do anything with a hoe; but when it came to cultivating crops with horses, I was and am strictly "on the job." I am inclosing you a cut of my four-horse apple-orchard cultivator that will do more work than a thousand men with hoes day after day. I have orchards of my own, and do lots of contracting to grow orchards for non-residents. This year I handled alone 195 acres. We cultivate these orchards ten times in five months. This would make 1950 acres to cultivate once over, or at the rate of 17 acres per day for 130 days in the 5 months. As my capacity is 20 to 25 acres per day, you can readily see that I would have some spare time to rest besides the rest on Sundays. Not only cultivating the ground, but I must drive within one to three inches of the trees every time I pass a tree, and not bark it. There are about 100 trees per acre. Here are four horses trained so perfectly that it is possible to do just such close work. I can take a weed out from close to a tree with this monster cultivator as easily as you can with your "little hoe." With cultivators made for the purpose, corn, potatoes, and all garden stuff, if planted in rows the right distance apart, can be cultivated more perfectly than even you, Mr. Root, could possibly do it with the hoe. Not only better work is done, but a thousand times as much more work is done, with a larger crop. Not one bit of hand hoeing for me. Give me the grand noble horses hitched to a good cultivator, and it is simply play to raise any kind of crop on good soil. My horses are so trained that I could send them over the field without me to drive them, occasionally, and the work would be done just the same. But soon they would miss the tension on the lines, and become lost. These horses are a part of myself to a certain extent. They come at my call, and call me when they want water and feed. When turned out in the pasture for a day or so, and they do not see me, when I go after them they are as tickled to see me as a dog is his master. This cultivator cuts as wide as ten to twelve feet, and requires four-horse power. I am doing two men's work.

Brewster, Wash., Dec. 14. V. W. CLOUGH.

TILE DRAINS, AND TILE MADE OF CEMENT IN PLACE OF CLAY

In the closing chapter of our book on tile drainage I made mention of the bad results down in Florida that came from home-made tiles made of cement and sand. This question has come up several times, and I have been told that well-made cement tiles answer all purposes, and stand all kinds of weather here in the North. However, I am just in receipt of a bulletin the heading of which reads as follows:

DURABILITY OF CEMENT DRAIN TILE IN ALKALI SOILS.

The closing remarks of this bulletin are as follows:

Drain tile manufactured in a manner as described for cement mixtures not leaner than one part cement to three parts of aggregate are apparently unaffected structurally when exposed for one year in operating drains in very concentrated alkali soils, similar to any of those included in the investigation.

Drain tile made from cement mixtures leaner than 1 part cement to 3 parts of aggregate should

not be used in localities where the character of the alkali and concentration is similar to that found at the site of the experimental drains at Grand Junction, Colo., Montrose, Colo., and Garland, Wyo.

Drain tile manufactured in the manner described of 1 part cement to 4 parts of aggregate, the leanest mixture used, is apparently unaffected structurally by exposure for one year in an operating drain in concentrated alkali soils similar to those found at Fort Shaw, Mont.; Sunnyside, Washington; Yuma, Arizona, and Roswell, N. M.

Other than the above, no very general conclusions should be drawn from this investigation until the results of further tests are obtained. It is anticipated that this report will be amended from time to time as the results are obtainable.

The department would be pleased to receive information concerning the behavior of the concrete exposed to concentrated alkali soil which may come to the attention of engineers or others interested in the use of concrete under these conditions.

Washington, D. C., July 12, 1915.

You will notice that in the above no mention is made of Florida soils; and so far as I am aware we have no alkali there to trouble us; but for some unknown reason all the cement tiles in our neighborhood, in Manatee County, have dissolved or rotted out sooner or later. Mine were mostly gone inside of a year. But I think that Mr. Rood's, or at least the most of them, did fairly good service for two or three years; and it is very likely that neither his tiles nor mine were made as strong in cement as mentioned.

"EFFICIENCY" (AND ECONOMY) THE "SLO- GAN."

We clip the following most sensible suggestions from *The Friend*, published away off in Honolulu:

WAR AND FOOD.

Reports from Germany tell the news that, because of the cutting of supplies from abroad, the nation's men of science have been compelled to give attention to the food problem in a way never before demanded. In consequence, new sources of food and the entire question of the amount and character of sustenance are being gone into with German thoroughness made all the more effective by the very pressing demands of the hunger situation. Out of this will come information of exceeding value to the world. In every wide-awake nation today there are numbers of people who are revising their habits of eating and drinking. Stimulants are being thrown to the bats and moles; tobacco and other narcotics are being discarded; meat consumption is being radically curtailed, and a regimen in accord with the demands of health and highest efficiency is eagerly sought. One of the greatest blessings which the war will confer, therefore, will come to these enthusiasts for being at one's best from Germany after the exhaustive study and experimentation now being conducted shall have crystallized into scientific knowledge. All who believe that extravagance in eating and drinking are marks of the beast in human nature, and directly prevent one's highest development, will hail these results with enthusiasm. Economy in food is the great demand of our day and nation, and it is good to think that this war, if it had to come, will help men to live more healthfully as well as more brotherly.

HEALTH NOTES

PHYSICAL CULTURE—SOMETHING IN FAVOR OF IT, EVEN FOR FARMERS.

In your potato book you say a few things to the effect that physical culture is unnecessary with farm work. I worked on a farm from the age of 12 to 16 (am still there), and at that time I could not do things that others stronger than I could. I took up physical culture, and in one or two years I was their equal, and in a few things stronger.

JOHN H. ROSSER.

Tambourine, Queensland, Aus.

My good friend, I think that what you allude to is where I spoke of lifting a bushel of potatoes to pour them into a sack that was hung on a wheelbarrow, etc. That kind of exercise seemed to bring almost every muscle of my body into play more or less; and by the time I had sacked several hundred bushels in that way I had gained in weight, and you may be sure I gained in appetite. At the present time I find it a benefit to go through a part of my physical-culture exercises every morning just before taking my bath. As soon as I am out of bed I swing my arms until I am warmed up enough so I do not mind taking a bath in moderately cool water.

WOMEN DOCTORS FOR WOMEN.

Mr. Root:—You say on p. 519, July 1, 1914, "No doctor is qualified to treat husbands and wives until he is a married man himself. . . . Perhaps I had better modify it by saying that any doctor 25 years old should be married, and should have some children. . . . I would suggest that his wife go with him, especially when he has women patients." To all of which I devoutly say *amen!* But why not go one better, and advocate women doctors for women? Do you know that, in my opinion, men doctors for women is one of the most disgusting things we could have, and one of the most debasing things for the women. Do you know that women being treated (and young girls too) at our public hospitals are exposed to the gaze of a body of *male students*? Could you imagine any treatment which would destroy her natural modesty quicker? I have even heard (and I have no reason to doubt it) that at one hospital in Sydney women are confined on a warm slab in the presence of a large class of students. Can you imagine the feelings of these poor creatures at the time of their greatest tribulation being subjected to this treatment? I am told that this is unavoidable, as the students must learn; but in my humble opinion they need not be male students.

Then, again, the percentage of bad immoral men in the medical profession is just as great as in any other walk of life; and the amount of harm done in family life is very great. Why run the risk of this at all when women doctors can do the work just as well? If you helped the cause of the women doctors it would help very materially to further this very necessary reform.

MAJOR SHALLARD.

Many thanks, my good friend, for your very excellent and kind suggestion. It is probably true—at least at the present time

—that our most able and efficient physicians are men; but there is no reason, as I see it, why a woman doctor, when she has charge of a critical case, should not call in an able male physician to consult with. Your suggestion (and how true it is!) that our doctors should be the most moral men—next to the clergy, in fact—reminds me there are quite a few who do not hesitate to use their position as a means to commit foul crime. During my short life I have known one or two cases where the family physician broke up a family; and I have come in touch, also, with doctors who gave the vilest counsel and advice to young men and boys, that one can well imagine. As an illustration, the family physician, one whose office is to lead the way to health, is too often a user of both alcoholic stimulants and tobacco. The papers of late have been declaring most vehemently that no drunken man, or, for that matter, *drinking* man, should presume to run an automobile. But what is an automobile compared with the human form? Think of a surgeon, with his keen lance, *taking* a drink before he undertakes an operation!

COUGH MEDICINES—A CAUTION.

When we gave a list of recipes for cough medicines made of honey in our issue for Oct. 1, the recipes were first submitted to a competent physician. He replied that there was nothing in them that would probably do any harm, but did not commit himself any further. I now notice that one recipe calls for lobelia. When I first began to go to school I was troubled every winter more or less with severe coughing-spells. They not only disturbed me, but sometimes they threatened to disturb the whole school. I think our family physician told my mother to give me at such times a little lobelia tea, sweetening it enough to be pleasant to take. When the cough was on I would take just enough lobelia to make me begin to feel a little sick at my stomach. The cough then would let up. Later on I carried lobelia pods in my pocket and would chew a small fragment when the cough began to trouble me. Below are some valuable suggestions, and a caution in the use of the much advertised "cough lozenges."

MEDICINE TO ASSIST PUBLIC SPEAKING.

The honey-in-cooking number had under Health Notes a pretty strong article against patent medicines; but in its list of recipes there were eight or nine for cough medicines. It looks as if the idea was that cough medicine is a sort of medicine that

does no harm. That isn't true. My father was a clergyman. Hoarseness used to interfere sometimes with his voice in the pulpit. He took cough lozenges to clear his throat, and he carried them into the pulpit. After years, when he was beginning to be dissatisfied with the working of the lozenges, a man sent him circulars and samples of a other kind that delighted my father by their efficiency. He bought them by the big box, and had them for a family medicine. At length his voice got so that he could not depend on it even with that help, and he felt it necessary to consult a doctor in the matter. The doctor told him that he had been ruining his throat with cough lozenges—first the milder sort, till those got him into a condition where they no longer took effect, then the stronger until they had about finished the job. His only chance, the doctor said, was to give up lozenges of any sort. By following that advice father's throat got back strength enough so that he went a few years more, and rounded out a good length of service; but when he did break down it was his throat that went first. *Moral*.—What is true of medicines in general is true of cough medicines.

I do not mean to decry the legitimate use of medicine. In many diseases there is some symptom which interferes with nature's work of curing the disease, so that if you knock out the symptom with a drug it leaves nature a better chance to work; and a cough is very apt to be such a symptom. Also there are cases where nature's curing is not enough without some help; for example, the lockjaw microbe cannot live long in a man's body. It always dies before the man does, so that in a sense the germ-killing power of the human blood has successfully cured the disease; but the microbe leaves in the blood so much of a strychnine-like poison that the man dies of that; so he has little chance of life unless you can either give him a dose that will kill the microbe quicker than the blood kills it, or else give him an antidote for that poison. So drugs have their proper use, though the best doctors are apt to be those who trust most to the self-curing power of the body. But I doubt if there is any exception to the rule that it is dangerous to make *habitual* use of any medicine, great or small, without the more or less continuous oversight of a competent doctor.

As to those recipes for cough medicines, I should think it safe to guess that the ones which contained least of medicinal ingredients would do least harm. Chambers' Encyclopedia gives a list of two or three dozen cures for cold that are used by different people, and then says, "There is no doubt that colds do get well under all these treatments;" but it thinks most of those colds would have got well quite as well without the treatment.

Some folks, sad to say, are so in the habit of dosing that they feel more as if they were going to get well if they are "taking something;" so it does them good to give them something that has a reputation but has no medicinal qualities, such as sarsaparilla or ginseng. Honey with something to make it taste bitter ought to be good for such. As to any possible medicinal effect of the honey itself, a medicinal quality that is not strong enough to keep the article from being wholesome as daily food is not strong enough to worry over.

The case is different with antiseptics to hasten the cure of external sores, wounds, etc. Such can do no harm to the constitution unless very badly misused. Honey ought to be an efficient mild antiseptic under any circumstances where it would not get diluted by watery discharges; but such circumstances would be comparatively rare, so without doubt the propolis salve that was recommended a few months ago would do better service in general.

STEVEN T. BYINGTON.

Ballard Vale, Mass., Oct. 14.

The suggestion in the above, that even if a drug *does* effect a cure for that particular trouble, there is much danger that it may do harm somewhere else in the system, resulting in proving the truth of the old adage that the remedy may be worse than the disease. And I heartily indorse the sentiment about the habitual use of *any* medicine being dangerous; and I am glad to see the statement that "sarsaparilla" and "ginseng" really have no medicinal qualities, and I think the list might be greatly extended.

OVEREATING, ESPECIALLY FOR ELDERLY PEOPLE.

We clip the following from the *Scientific American*:

In conclusion let me warn you of the dangers of overeating. Most of us eat too much. We would do well to follow the advice of the great English physician, George Cheyne: "Every wise man, after fifty, ought to begin to lessen at least the quantity of his aliment; and if he would continue free of great and dangerous distempers, and preserve his senses and faculties clear to the last, he ought every seven years to go on abating gradually and sensibly, and at last descend out of life as he ascended into it, even into the child's diet." In short, why do men over forty break down? Indulging their appetites!

Amen to the above. Especially let me put additional emphasis on the fact that as we grow older, and begin gradually to let up on both physical and mental work, we should let up on our eating—especially on eating solid and substantial food toward the close of the day; and as we go down to our second childhood let us by all means adopt the author's idea.

Just a word in regard to the matter of sleep. The first days and even months of childhood are largely devoted to sleep; but as we get older there seems to be less need of it. Now, when our faculties begin to be impaired by age my experience is that we need sleep oftener. Occasionally I do some work in the garden, or possibly somewhere else, by which I get pretty well tired out. At such times I can neither work nor even read intelligently. But a twenty-minute rest and good sound sleep gives me all the vigor and strength of both body and mind that I have in the early morning. In this way we cannot only take care of ourselves, but lend a helping hand to the good people around us, not only when we are up to eighty but even ninety.

In recommending sleep, please do not get the notion that I advise anybody of any age to mope around lazily. Sleep only when you are tired out and fatigued by some sort of work.



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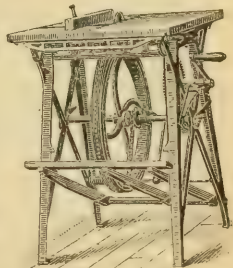
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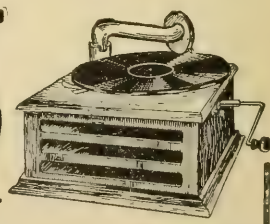
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Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices. Here's a few of our big values:

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A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants. Also enough seed of the new CEREAL FETERITA to plant a rod square of ground. At a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with **THE GARDNER NURSERY COMPANY** Box 749, Osago, Iowa.

PATENTS

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Spray Your Crops

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.

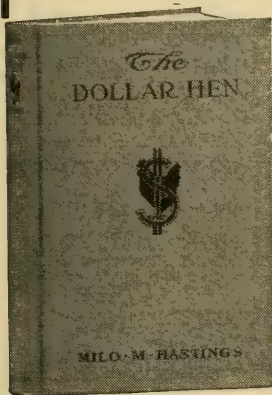
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207 Broadway Rochester, N. Y.

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My opinion is that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up to date, and still fewer that pitch right into the superstitions and humbugs scattered thru all our poultry books and journals.—A. I. Root.

This book will be clubbed with GLEANINGS for one year at \$1.35; or, if you have already subscribed a year or more in advance you can have the book for 60 cents.

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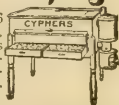
Write to Mr. A. L. Rice, Manufacturer, 11 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.



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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc., needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

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WHITE SWEET \$5.40
CLOVER 5 Per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE

The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhulled and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.

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SWEET CLOVER \$5.50
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White Blossoms. Biggest bargain in unhulled Sweet Clover this season. Have scarified hulled seed at low prices. Wonderful money-maker. Best paying crop on the Farm today. Builds up worn out land rapidly and produces heavy, money-making crops while doing it. Splendid pasture and hay; inoculates your land for Alfalfa. Keep up with the times. Investigate. It will pay you to get our free samples and prices and big Profit Sharing exclusive Field and Grass Seed Guide. It's free. AMERICAN MUTUAL SEED CO., Dept. 666, 43rd and Roby St., Chicago, Ill.



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Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Pure-bred heaviest laying strains. Fowls, Eggs, Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free. W. A. WEBER, Box 964, Mankato Minn.



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QUEENS OF QUALITY

The editor of *The Beekeepers' Review* and his sons have 1100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt colonies desirable as breeders from a honey-producer's standpoint. Likely, never in the history of beekeeping was there a better opportunity to test out the honey-getting strain of bees than this. Think of it, 1100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor season (with us), while the average of the entire 1100 being not more than 40 pounds per colony. We have sent two of our best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben C. Davis, both of Spring Hill, Tenn., and they will breed queens for the *Review* during the season of 1916 from those four superior honey-gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three-banded strain of Italians; also that of John M. Davis; while Ben C. Davis breeds that disease-resisting strain of goldens that is becoming so popular.

By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as a breeder. We will tell you. They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review*, and one of those famous queens. Those queens are well worth two dollars each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of GLEANINGS a subscriber to the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address with remittance

THE BEEKEEPERS' REVIEW, Northstar, Michigan.

ON THE BOOKSHELF

The Rockefeller Foundation

We have just received the Annual Report of this society for 1914. It has 214 pages, and is probably the most remarkable report of the kind ever issued, especially as the association is the carrying-out of the plans of one man, and that, too, on a scale so stupendous that perhaps no government on earth would dare attempt it.

In all the large continents of the globe are to be found vast areas where the inhabitants are nearly all afflicted with some endemic malady, which, although not immediately fatal, still renders the subject of attack a pitiable wreck, transmitting the trouble to others. One of the most notable cases of this kind is known as the hookworm disease of the South. It is an intestinal trouble caused by the presence of the hookworm, which causes an enormous swelling of the abdomen, and general prostration. It is caused by the lack of proper sewerage, and going barefoot in the infected soil. The report says:

"The Commission has found more than two million people in the Southern States to be infected with the disease, involving vast suffering, partial arrest of physical, mental, and normal growth, great loss of life, and noticeable decrease in economic efficiency over vast regions."

The report adds that over half a million persons have been treated, and that a diagnosis of the disease can be made with ease and certainty, and that it can be readily cured and easily prevented.

The association in question, for the support of which Mr. John D. Rockefeller has alone contributed the enormous sum of one hundred million dollars, now proposes to grapple these various diseases in all quarters of the globe in the same way our government took hold of the yellow fever in Cuba and a multitude of epidemic diseases in the Canal Zone, and virtually wiped out the last vestige of them.

The results accomplished almost stagger belief; and as these evils are the immediate result of appalling filth, it is likely that, with an increasing degree of intelligence in those benighted districts, especially in Egypt and India, and a dying-out of religious customs which tend so directly to the spread of these loathsome diseases, the duration of human life will soon be doubled in length and trebled in sweetness.

The Rockefeller Foundation, while working on independent lines (for it is independent) yet seems to affiliate readily with all governmental efforts along parallel lines.

We of this country need not repress a patriotic pride in seeing our men of capital and technical skill sending out the X-ray of hope and comfort to the millions of afflicted ones in all climes, and literally trying to "lift up the fallen," against whom the bars of hope have so long been fastened. And with this increase in bodily vigor we may be sure a higher mental and spiritual mode of life will be sought for and found in all nations.

We see no price attached to the book in question; but it can probably be had for a nominal sum by sending to The Rockefeller Foundation, 61 Broadway, New York.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—White-clover comb honey, extracted, in 60-lb. cans. HENRY HETTEL, Marine, Ill.

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

FOR SALE.—Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Basswood and clover extracted honey in 160-lb. kegs and 60-lb. cans. B. B. COGGSHALL, Groton, N. Y.

Light amber, of good body and flavor; 120 lbs. in case, at 6 cts.; sample, 10 cts. H. C. LEE, Brooksville, Ky.

Clover-heartsease-goldenrod blend. Light amber, best quality, prices right. Sample 10 cts. E. S. MILLER, Valparaiso, Ind.

FOR SALE.—Choice-grade well-ripened clover honey, good grade for bottling; put up in 60-lb. cans. GEO. M. SOWABY, Cato, N. Y.

FOR SALE.—Three 60-lb. cans light extracted honey at 9 cts. per lb. Sample, 10 cts. H. J. AVERY, Katonah, N. Y.

FOR SALE.—Finest quality of white-clover-basswood blend extracted honey in new 60-lb. cans. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—10,000 lbs. white-clover extracted honey in new 60-lb. net tin cans, 2 in a case, for shipment, sample free. Address D. R. TOWNSEND, Northstar, Mich.

Mesquite and catchaw extracted honey, extra heavy body and exquisite flavor; f. o. b. Cherry Creek, Ariz.; 120 lbs. for \$10.00. Sample, 10 cts. Address BELL APIARIES, Camp Verde, Ariz.

Amber honey, 7½ cts. per lb.; sage honey, 8½; clover honey, 10 cts. per lb. in 60-lb. cans. White comb honey, 12 to 16 cts., box by the case. I. J. STRINGHAM, 105 Park Place, New York.

Special price on a quantity of near-water-white white-clover extracted honey in new cans and cases. Money cannot buy better honey than this. A free sample will convince you. E. D. TOWNSEND, Northstar, Mich.

Fine new-crop clover and basswood honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-pound cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Well-ripened and mild-flavored extracted honey, two 60-pound cans to case; white, 7 cts.; amber, 6; the amber put up in pails, six 10-pound or twelve 5-pound to case for \$6.00. Fall comb honey, No. 1, \$3.00 per case; No. 2, \$2.75; No. 3, \$2.50 per case of 24 sections, six cases to carrier. H. G. QUIRIN, Bellevue, Ohio.

FOR SALE.—Car honey, half extra-fine comb, half extracted, alfalfa, or car extracted. Small lots at \$8.00 per case of two 5-gal. cans; case of 6 10-lb. pails, \$5.00; 12 5-lb. pails, \$5.40; all f. o. b. here. E. F. ATWATER CO., Meridian, Ida.

RASPBERRY HONEY, all left on the hives until thoroughly ripened. It is thick, rich, and delicious. This honey is put up in new 60-lb. tin cans. We have it in two grades—pure raspberry and raspberry blended with just enough buckwheat honey to color it. Price, the pure raspberry, \$6.00 a can; the raspberry and buckwheat blended, \$5.50 a can. In one-gallon cans by express, raspberry, \$1.50 a can; raspberry and buckwheat blended, \$1.40 a can. Sample of either kind by mail for 10 cts., which may be applied on an order for honey.

ELMER HUTCHINSON, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMMEYER & ARPE CO., 139 Franklin St., New York City.

WANTED.—Bulk comb, section, and extracted honey; state price and submit sample. J. E. HARRIS, Morristown, Tenn.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

HONEY LABELS.—All styles. Catalog with prices free. EASTERN LABEL CO., Clintonville, Ct.

HONEY LABELS.—New designs. Sample free. LIBERTY PUB. CO., Sta. D, box 4E, Cleveland, Ohio.

FOR SALE.—Sweet-clover seed, unhulled, recleaned. HOWARD A. JETT, Brooksville, Ky.

FOR SALE.—New and used Danz. supplies cheap. WM. H. MARTIN, Rt. 1, box 13, Osawatomie, Kan.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Double-walled two-story beehives with supers, metal roofs; bargains at \$1.00 each. L. F. HOWDEN, Fillmore, N. Y.

FOR SALE.—80 lbs. mixed white and yellow unhulled sweet-clover seed, 12 cts. per lb., any quantity. F. W. LESSER, Rt. 3, East Syracuse, N. Y.

FOR SALE.—Beginner's outfit of six Danz. hives; also two-frame extractor; all at half price. E. M. STRUCK, Rt. 3, Delmar, Iowa.

FOR SALE.—Two 12-inch foundation-mills—one a flat bottom for surplus boxes; one a Root for brood-nest or surplus. Both in good condition; each, \$12.00. Make it yourself. I will tell you how. J. H. NELLIS, Paterson, N. J.

FOR SALE.—Power extractor, new Root six-frame automatic, friction drive; baskets will take Jumbo, Langstroth, or Gallup frames. This extractor is in first-class condition; will sell \$5.00 under cost. THOS. BRODERICK, Rt. 3, Moravia, N. Y.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

Names of 400 Chicago honey-users, in card index, for sale to highest bidder. See KENNEY, 1729 Monroe St., Chicago, or write E. V. SMITH, Plainwell, Mich.

FOR SALE.—Friction-top pails, 5-lb. size, per 100, \$4.50; 500, \$21.25; 10-lb. size, per 100, \$6.25; 500, \$30.00. Low prices on other sizes in bulk. Also furnished in reshipping-cases. Shipped from Chicago. A. G. WOODMAN CO., Grand Rapids, Mich.

Convert your hives into improved ones—cost slight; 12 per cent or more comb area added to supers; brood-nest and supers about 80 to 90 per cent more closely related; about 15 to 40 times more robber-proof. Better in summer and properly winter-temperated. No heavy lifting necessary. Other advantages. See article on page 30, this number. Address W. F. MCCREADY, Estero, Lee County, Fla.

MISCELLANEOUS

FOR SALE.—Edison Home phonograph, good as new. Complete with records. Will sell it at a bargain. Write O. W. DRUSHEL, Rt. 5, Millersburg, O.

FOR SALE.—One Remington repeating rifle, short or long rifle, 24-inch octagon barrel, 12 C grade; A No. 1 condition; cost \$16.00. Price \$12.00. W. B. HALEY, Oakwood, Texas.

Hohner Italian organ accordion, ebony finish; panels white maple in fancy scroll work. Has 31 invisible keys with pearl buttons; six sets genuine steel reeds and sixteen bases; organ-like tone; little used. Guaranteed O. K. Cost \$29.75 new. Will sell for \$22.00, including carrying-case.

WM. GABRIEL, Scribner, Neb.

PATENTS

PATENTS THAT PAY. \$600,812.00 clients made. Protect your ideal! Send date. Advice and two wonderful Guide Books free. Highest references.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

Poultry Paper, 44 125-page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

REAL ESTATE

FOR SALE.—A perfect place for bee-yard; nearly 2 acres, 8-room house. Write for particulars to owner, J. B. HERR, Melbourne, Fla.

FOR SALE.—A very fertile 7-acre farm with apary of 109 colonies; house, barn, storage, and chicken houses; orchard, excellent water facilities; on market road; No. 1, in small village. MRS. H. R. BOARDMAN, Rt. 2, Collins, Huron Co. O.

ORCHARDS in Famous Fruit Belt of Virginia. Low price, easy terms, on railroad, near market. Write for list. Farm lands \$15.00 per acre up. Mild summers, short winters, good markets. If you will send names of two friends interested in Virginia or North Carolina, will enter your name for year's subscription free to Southern Homeseeker. Write F. H. LABAUME, Agr. Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

WANTS AND EXCHANGES

WANTED.—Second-hand two-frame extractor in good condition. MERTON T. BEEBE, Dover, Ohio.

WANTED.—To supply honey-producers with Atchley bees and queens. They get the honey. Un-
tested, 75 cts.; \$8.00 per dozen. Bees and nuclei a specialty. WM. ATCHLEY, Mathis, Texas.

WANTED.—A partner in bee business with \$300 and some experience with bees. I have kept bees for 20 years. Don't answer unless you mean business. No liquor user need apply—only a hustler.

HENRY BALDUFF, Beardstown, Ill.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discount.

C. E. SHRIVER, Boise, Ida.

BEES AND QUEENS

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later. N. FOREHAND, Ft. Deposit, Ala.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnetts, Va.

FOR SALE, or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list.

J. L. LEATH, Corinth, Miss.

FOR SALE.—400 colonies of bees in 8-fr. hives, Hoffman frames, telescopic covers, three locations, 900 supers, 200 extra hives of combs, honey-extractor, etc. G. FRANK WILSON,

829 Bross St., Longmont, Col.

Golden Italian queens that produce golden bees; the brightest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. THE DEROT TAYLOR CO., Newark, N. Y. (formerly Lyons).

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

M. C. Berry & Co., Successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list.

M. C. BERRY & Co., Hayneville, Ala.

We are now booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young un-
tested Italian queens, 75 cts. each, or \$8.00 per doz. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

FOR SALE CHEAP.—80 colonies of Italian bees, Moore stock, 8 and 10 fr. hives; 42 empty supers, full depth; 60 shallow ext. supers; wax-press, extractor, uncapping-tank, smokers, knives, foundation, shipping-cases, etc., for \$300.00 cash. A rare bargain. Speak quick. Address 38393 "A BEE KEEPER," care of GLEANINGS, Medina, Ohio.

QUEENS.—Italians exclusively; golden or leather-colored. One select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen, \$1.25 after March 20. No reduction for less than 50. 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with ¼ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

SITUATIONS WANTED

Experienced man wants position by April 10 in apiary. Good habits, family of five.
L. B. WOOD, Area, Ill.

Experienced queen-breeder wants work for the season of 1916 with some reliable firm. Prefer raising queens for the market, but will also handle colonies for honey production. Best of references furnished. State wages and full particulars when writing.
N. C. JENSEN, Albion, Neb.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00 return mail.
A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.
H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Imported, three-banded Italian bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

You can have your beeswax made into *best quality* foundation; also the wax from old combs or slungum. We get it all out. On shares or very cheap for cash. New factory. Old liberal terms. Cheapest and handiest transportation for all Northern beekeepers. You always get your own wax back.
J. J. ANGUS, 434 Fulton St., Grand Haven, Mich.

Convention Notices

MASSACHUSETTS CONVENTION.

The annual Massachusetts convention of beekeepers for 1916 will be held at Amherst, Mass., March 14 to 16, inclusive. This will form the conclusion of the winter school of beekeeping, but the program of the convention is not fully planned. A number of prominent authorities will appear upon the program.

MONTANA MEETING.

The Montana State Beekeepers' Association will hold its annual convention in Billings, Mont., Jan. 20, 21, 22, in the basement of the Farmly Billings Library. All meetings will begin promptly at 9 A. M. and 2 P. M. respectively. An interesting and instructive program will be carried out. All beekeepers of the state, whether members of the association or not, are invited to attend the convention and take part in the discussion and the question-box. One session will be held in conjunction with the Montana State Horticulturists' Association, which meets in the city at the same time, at which topics of mutual interest will be discussed. Rates of fare will apply if a railway receipt or certificate is asked for when purchasing a single-fare ticket from your local agent and presenting it to the association secretary upon your arrival at the convention.
FEROY F. KOLB, Sec.

Billings, Mont., Dec. 16.

FREE ONTARIO SHORT COURSE IN BEEKEEPING.

The sixth annual short course in apiculture of the Ontario Agricultural College will be given at Guelph, Ont., January 11 to 22, 1916. It is the purpose of this course to give the underlying principles of bee nature, a knowledge of which is essential to successful bee management. The course is valuable to beekeepers of all degrees of practical experience. It is absolutely free, the only condition being that students reach the college in time for registration at the president's office, Monday, Jan. 10, and attend lectures regularly thereafter. Railroads give reduced rates of fare to persons traveling to take the course.

The instruction will consist of lectures by Morley Pettit, Provincial Apiarist; F. E. Millen, lecturer in apiculture in Michigan Agricultural College, and other authorities. These will be illustrated by lantern slides, and in many cases by the actual objects under discussion.

The Agricultural College will gladly send further information to persons thinking of taking the work.

ADVANCE PROGRAM OF NATIONAL BEEKEEPERS' ASSOCIATION CONVENTION TO BE HELD IN CHICAGO, FEBRUARY 22—24.

PAPERS AND ADDRESSES PROMISED.

Use and misuse of prime swarms,
Grant Anderson, San Benito, Tex.
Advertising and selling ripe honey,
R. M. Spencer, Ventura, Cal.
Beekeeping in Utah,
M. A. Gill, Hyrum, Utah.
Teaching value of honey in our public schools,
Geo. W. Williams, Redkey, Ind.
Insuring honest values to queen buyers,
Kenneth Hawkins, Plainfield, Ill.
Extending the use of honey in cooking,
E. H. Bruner, Chicago, Ill.
Possibilities and limitations of inspection,
Frank C. Pellett, Atlantic, Iowa.
Establishing a trade name,
E. R. Root, Medina, O.
Some beekeepers of Canada and their apiaries
(with stereopticon slides),
Morley Pettit, Guelph, Ontario.
Importance of bees in pollinating economic plants,
L. H. Pammel, Ames, Iowa.
Out-apiaries,
O. P. Dadant, Hamilton, Ill.
The depressed honey market,
J. E. Pleasants, Orange, Cal.
Beekeeping improvement thru agricultural school-work,
Francis Jager, St. Paul, Minn.
Papers (subjects later)—Grover Matthews, Filer, Ida.; J. H. Stoneman, Blackfoot, Ida.; D. C. Polhemus, Lamar, Col.

IDAHO-OREGON PRODUCERS ELECT.

The annual stockholders' meeting of the Idaho-Oregon Honey Producers' Association was held at Ontario, Oregon, December 7 and 8, and the following officers elected:

C. E. Dibble, president; J. M. Stark, vice-president; P. S. Farrell, secretary-treasurer.

The following were elected Directors for the coming year: C. E. Dibble, Payette district; J. M. Stark, Middleton district; C. W. Nelson, Vale district; P. B. Randall, Nampa district; H. M. West, Parma district; J. F. Weaver, Ontario district; Homer Cheney, New Plymouth district.

One member in each district was appointed to take up the use of honey in cooking with his local domestic-science teacher, and a committee will be appointed to take up the same subject at our next school convention.
F. S. FARRELL, Sec.

TRADE NOTES

CATALOG FOR 1916.

We have completed printing the first run of our 1916 catalog, and will mail a copy to any one on request. It will be several weeks before we reach all the names on our list, so that, if you would like to get one before we reach you in the regular list, send a request on a postal, and it will be promptly mailed.

BEEWAX MARKET.

While there has been no noticeable change in the beeswax market of late, we will from this date, till further notice, pay 28 cents cash, 30 in trade, delivered at Medina, for good average wax. Price paid at our California branches will be 2 cents a pound less.

SWEET-CLOVER SEED.

Those having a surplus stock of white-sweet-clover seed, hulled or unhulled, which they desire to sell are asked to submit a sample, stating quantity, and the price asked. While there has been a good crop of seed, a great deal is still in the hands of producers because the market price has been much lower than for several years past.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0147, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0153, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{2}$ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 165, $2\frac{1}{2}$ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, $2\frac{1}{2}$ x 10 hexagonal light medium-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0222, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0225, $2\frac{1}{2}$ x 12 hexagonal medium-brood mill in excellent condition; nearly new. Price \$25.00.

No. 0226, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fair condition; a few bruised cells. Price \$18.00.

No. 0227, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill; a new machine which does not test up to our present high standard, but a bargain at \$30.00.

No. 0228, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in good condition. Price \$22.00.

No. 0230, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 231, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fairly good condition. Price \$20.00.

No. 0232, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill; not very good cells; somewhat bruised. Price \$15.

No. 0233, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, $2\frac{1}{2}$ x 6 extra-thin-super mill in very good condition. Price \$12.00.

No. 0235, $2\frac{1}{2}$ x 10 hexagonal light-brood mill in good condition. Price \$22.00.

No. 0236, $2\frac{1}{2}$ x 6 extra-thin-super mill in good condition. Price \$12.00.

No. 0237, $2\frac{1}{2}$ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, $2\frac{1}{2}$ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, $2\frac{1}{2}$ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0240, $2\frac{1}{2}$ x 10 medium-brood mill, hexagonal cell in fair condition. Price \$17.00.

No. 0241, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0242, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

THE A. I. ROOT CO., Medina, Ohio.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soapy water clear thru the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1620 Court St., Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ont.



Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas



Put the price of four pounds of honey into a subscription for **THE COUNTRY GENTLEMAN**. It will keep you up-to-date on your little farm every week for a year.

Every bee keeper must have his garden, orchard and poultry yard.

Regular weekly departments in **THE COUNTRY GENTLEMAN** present the best available articles on these subjects throughout the year.

There are also many valuable articles by authorities on bees.

The best of all farming everywhere is covered by this national agricultural weekly.

Write to our "R. F. D. Letter Box" for solutions to any hard problems. Answers free.

The COUNTRY GENTLEMAN

New Price
**52 times a year
for \$1**
**On news-stands
five cents**

—CUT OUT—MAIL TODAY—

The Country Gentleman, Box 580, The Curtis Publishing Company, Independence Square, Philadelphia

Enclosed please find \$1.00 (Canadian price \$1.75.) Please send **THE COUNTRY GENTLEMAN** for one year to the address below:

Name _____

Address _____

R. F. D. Route _____

\$1000 COLD CASH for Beemen

Make a CLEAN Fortune from UNCLEAR Millions

New - - Brilliant - - Scientific Invention

Solves mighty home problems. People everywhere are waiting for it—wonder why it was never invented before. Supplies enormous demand. Covers new field. Just out—just introduced. Tremendous rapid sale staggers country. Remarkable demonstrations going on everywhere. Agents happy—banking enormous profits daily. \$80.00 clear in 2 days—one man's record. Mighty opportunity for you to get the mighty dollar. Failure impossible.

No Experience Required

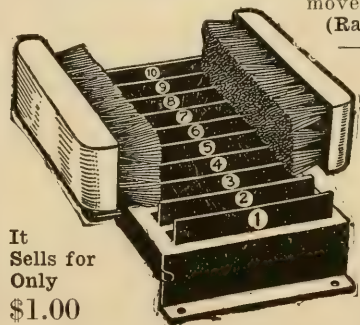
Territory free, but going fast—worth fortune—get yours today. Write now. Don't lose by waiting. Win by immediate action—without risk, obligation, or cost—the very chance you have been looking for.

Hailed as a Great Blessing to Humanity

Clean homes demand clean shoes. Dirty shoes with their load of dirt, mud, or snow have been the bane of every woman's life. Women for ages have been slaving to keep the house clean, but it is no longer necessary to endure the hardship imposed by dirty shoes. The time has come when people can and will "wipe their feet before entering." This problem is solved—this longed-for and enjoyable condition is now a happy reality for all. Once again man's inventive genius has conquered and lifted a great burden from women's shoulders.

Every family wants Grab's Automatic Foot Scraper on their doorstep. Replaces unsightly, unsanitary, crude door mat. Mud, dirt, dust, snow, dirt of all kinds, removed in a jiffy. Works like magic—sells like "sixty."

(Ramsey, of Mont., writes: "Only 45 families in town—have sold all.") A positive pleasure for any one to use—a source of never-ending comfort to the housewife, to all who value cleanliness.



It
Sells for
Only
\$1.00

Grab's Scientific Shoe Scraper

Truly a mechanical and scientific wonder. Automatically removes mud, dirt, dust, snow, from shoe in one operation. Cleans sides, sole, heel. For men, women, children. Automatically adjusts itself to any size shoe—any shape. Attaches quickly to any doorstep or other handy place without screws, nuts, bolts. Neat, attractive, always ready to use. Rotates for sweeping. Handsomely enameled. Saves drudgery, time, money, shoes—saves carpets, floors. Mechanical wonder. Weighs less than 3 pounds. Very compact, strong, easy to carry. Has 7 new patented features not found in any other scraper—10 steel blades—10 dirt outlets—twin adjustable and removable brushes—compound springs. Can't clog—practically self-cleaning. Guaranteed satisfactory or money refunded.

Means less dirt—less work—less drudgery—less shoes to buy—longer life to rugs, carpets, floors—better health. Over half million in daily use. It appeals to everybody. High grade, unquestionable merit, something with class, practical and durable value, unique, odd, and pleasing to the eye. Sells on sight. No forcing, no salesman's tricks or deception necessary. Simply tell the truth—that's all. You have nothing to learn—nothing to set up—no dirty work to do. Seeing dispels all doubts, settles all questions, a sale results. So easy because it solves a mighty home problem, costs so little, does so much, is not a luxury, but an actual necessity. Every person who sees it wants one. (J. Rowan, Mont., writes: "Six dozen received. All sold, and more. Find them easy sellers, as they fill a long-felt want.") This invention is right for the public, right for you. The price of \$1.00 retail is insignificant, everybody can afford it, everybody recognizes immediately its great practical value, can see at a glance that it saves labor, drudgery, health, worry, time, carpets, floors. You have no competition. There is nothing else like it. What others have done you can do, but do your part—get started today.

Read These Amazing Cash Records

Walters, Tex., made \$25 first day; never sold goods before. Arnold, N. D., orders one, then 2 gross; sold 160 in 2 days. Hagen, Tex., sold 100 in 2 days. Webb, Pa., averaged 10 sales per hour. O'Connell, Mont., 25 first day. Mike Bock, Minn., 30 first day. Mrs. Windsor, Mo., "Ship 6 dozen more. First 3 dozen all gone. Have orders for 75 more." G. Pauscher, Minn., "Ship 5 dozen. Sold 36 first morning." G. Froom, Iowa, "I sold 30 first hour."

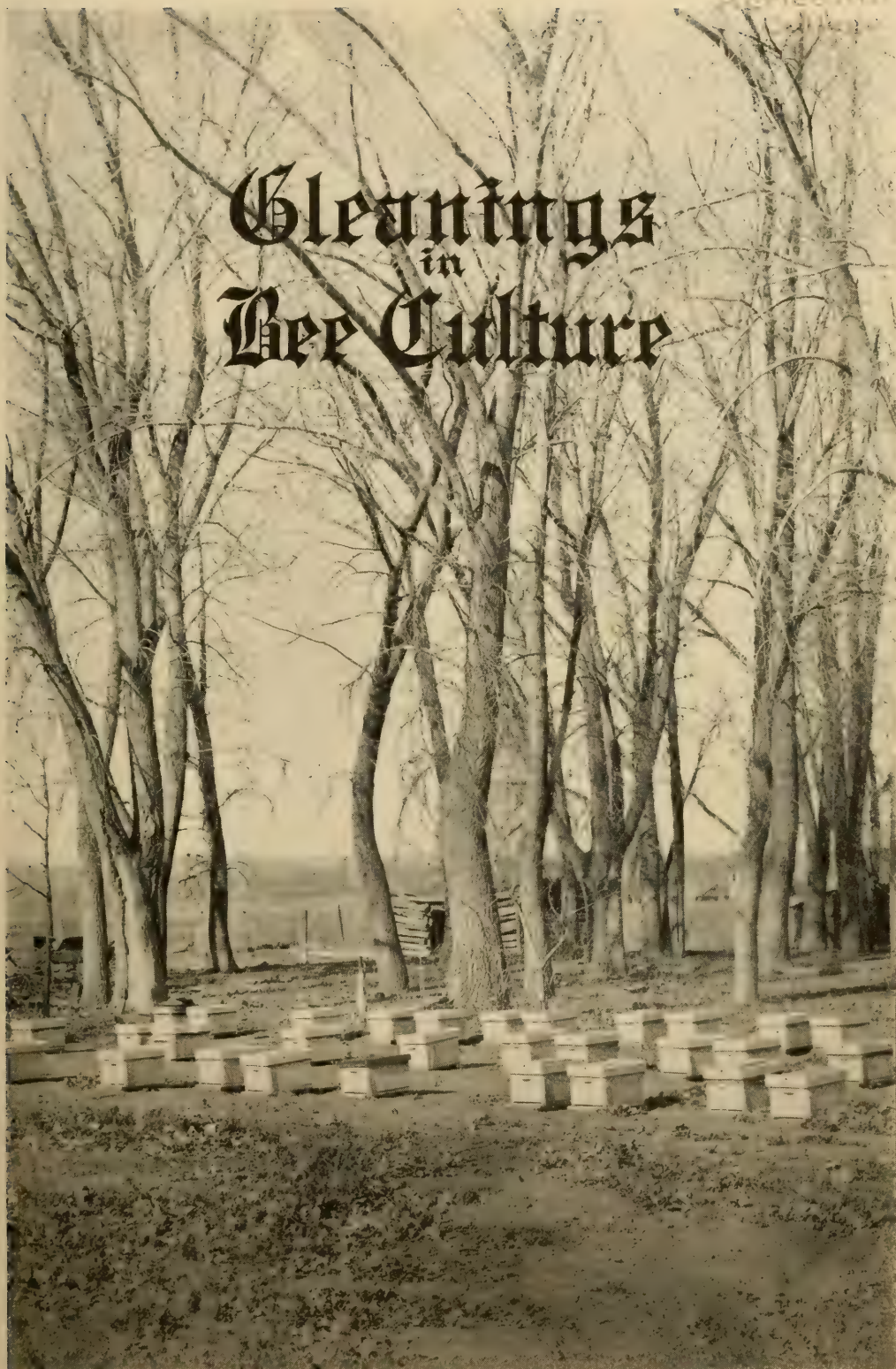
Hundreds like these—many doing better. You, too, can have money in abundance. Just get started. Quit the shirt-sleeve wages—stop worrying with goods that everybody has or nobody wants. Get Grab's. It's new, wonderful, irresistible.

Write . . . for free catalog and exclusive agency. Better still, send order, naming territory. Satisfaction guaranteed—you can't lose. Investigate anyhow. . . Today It costs nothing—leads to your success and certain prosperity. Address

SECURITY MFG. CO., Dept. 237, TOLEDO, OHIO

Vol. XLIV
February 1, 1916
No. 3

Cleanings in Bee Culture



Winter Strawberries



How to Secure these Wonderful Plants---Free!

The wonderful Progressive Everbearing Strawberry Plants are becoming immensely popular. No wonder! You set them out in May and enjoy fine berries during the following summer and fall. No long wait for this crop! Progressive Everbearing Strawberries take the risk out of Strawberry growing, too. The plants are much harder than the common varieties. Ordinary spring frosts will not hurt them. Even if a heavy freeze does kill the early spring bloom, in 30 days they will bloom again.

Thru a special contract with a grower of National reputation, The Farming Business is able to furnish to you FREE these wonderful

Progressive Everbearing Strawberry Plants

or, if you prefer, Fall-bearing Strawberry Seeds—the true hybridized sort, and also plants of the ever-popular Chesapeake variety. All strains are pure. The Progressive plants will actually grow and fruit as described. A test patch of a square rod was set in May, 1914. Just 83 days after, the owner began gathering a fine crop, which continued till late October, aggregating 74¾ quarts. The great Chesapeake variety needs no introduction. The Fall-bearing Seeds afford a most interesting way to grow Strawberries. These plants and seeds are scarce this year, and prices will be high, where they are obtainable at all. Act now and insure yours.

Our Plan



NO. 1.—Send \$1 (stamps accepted) for Farming Business—one year—52 big issues—and we will send in addition 12 healthy Progressive Everbearing Strawberry Plants this spring, just at the right time to set. Postage prepaid.

NO. 2.—Send one yearly subscription to The Farming Business, together with \$1 (stamps accepted), and in addition to the paper we will mail you one packet of true hybridized Fall-bearing Strawberry Seeds. This will give you about 500 plants.

NO. 3.—Send \$2 (stamps accepted) for The Farming Business—2 years, 104 big issues—and we will send in addition 12 Progressive plants and also 25 plants of the popular Chesapeake variety.

You need The Farming Business in your home. It is practical, helpful, progressive, cheery. A great paper for the busy farmer and the entire family. The Vegetable Growers' Magazine Section alone is worth the subscription price. It will pay you to accept one of our liberal offers. If already a subscriber your paper will be continued for an extra year—or two. Accept today to make sure of your free berry plants or seeds.

The Farming Business

Dept. X

500 North Dearborn St., Chicago, Ill.



THE IDEAL BEE-VEIL

Oftentimes when out in the yard working with the bees one stoops over to pick out a frame, and, as usual, bees keep buzzing around his head, watching for a chance to sting. The cloth veil which is often used sticks to the face when one bends over, and gives the bees an opportunity to sting. The IDEAL BEE-VEIL is constructed of cloth of wire, there being a cord at the top of the veil used to pull the cloth around the crown of the hat. The lower part also has a cord which fastens around the waist. The wire on the IDEAL veil does not strike the face, and prevents the bees from stinging. It can be readily seen that a veil of this kind has the cloth veil far outdistanced for comfort and utility. Sparks from the smoker do not burn holes in the IDEALS as in the netting veil.

The veil is manufactured by us, and is recognized by the best and largest beekeepers as the most practical veil on the market.

Red Catalog, postpaid. "Simplified Beekeeping," postpaid.
Dealers Everywhere.

W. T. Falconer Mfg. Co. . . . Falconer, N. Y.

Where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

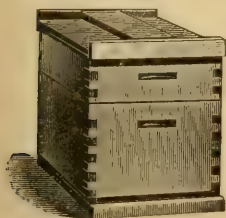
Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



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30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH

1. *Extra Fancy*.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

NEW YORK.—The market is very inactive, both on comb and extracted honey, and large buyers are few and far between. Prices rule about the same as in our last report.

New York, Jan. 22. HILDRETH & SEGELKEN.

INDIANAPOLIS.—Trade has not been very active in comb honey during the past three weeks; however, the demand for extracted is fairly satisfactory. Choice No. 1 white comb honey is selling at \$3.75 to \$4.00 per case, and \$3.50 per case for No. 2. Finest grades of extracted are selling at 9½ to 11, according to quantity. For beeswax we are paying 28 cts. cash or 30 in trade, delivered.

Indianapolis, Jan. 20. WALTER S. POUDER.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1 per case, \$2.93; No. 2 per case, \$2.70. White extracted, per lb., 8½ to 8¾; light amber, 8 to 8¾; amber, 7 to 8. We pay 25 cts. per lb. in cash and 27 cts. per lb. in trade for clean yellow beeswax delivered to us here at Denver.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Jan. 22.

ST. LOUIS.—There is no change since our last quotations, and our honey market is still very dull and slow, with stocks ample for all demands. We are quoting white comb honey, 24 sections to the case, at \$3.25 to \$3.50 per case; amber, from \$2.50 to \$3.00 per case; extracted in 60-lb. cans, 5 to 8½; southern amber extracted, in barrels, from 5 to 6, according to quality. Beeswax is firm at 28½ for pure; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Jan. 21.

KANSAS CITY.—The supply of both comb and extracted honey is large, and the demand very light—especially on extracted. We quote No. 1 white comb honey, 24-section cases, at \$3.10 to \$3.25. Some sales of No. 1 comb have been made at \$3.00. No. 2 white comb honey, 24-section cases, bring \$2.75 to \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.50 to \$2.75; extracted white, per pound, 7½ to 8; ditto amber, light, 6½ to 7; ditto, dark, 5½ to 6. Beeswax, No. 1, brings 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Jan. 17.

We are in the Market to buy both comb and extracted honey. Write us what you have to offer, naming your best prices delivered. Every time an interesting price is named us, we buy, and remit the day shipment arrives.

Ship Us Your Old Comb We render it into wax, and pay market price.

The Fred W. Muth Co., 204 Walnut Street, Cincinnati, Ohio
"The Busy Bee Men"

QUEENS FOR EARLY SPRING DELIVERY

We conduct a Bee and Queen Rearing Business in Florida during the winter, and at Canton, Ohio, during the summer. We now have a carload of selected Italian Bees in Florida for the purpose of supplying you with Bees and Queens for EARLY SPRING DELIVERY. WE GUARANTEE PURE MATING AND SATISFACTION IN EVERY RESPECT, OR MONEY REFUNDED. We are breeding from Queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. Will it not pay you to have this strain of bees in your yard? Prices as follows:

ISLAND-BRED ITALIAN QUEENS.

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens,
\$5.00 and \$10.00 each.

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
½-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus....	\$2.00	Three-frame Nuclei	\$4.00	Eight-frame Colony...	\$ 8.50
Two-frame Nuclei	\$3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

Address all communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

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After 20 Years of Select Breeding We have Bees in Quality Second to None

Price List of Our Queens

Tested	\$1.25 or \$1.15 per 100	Untested	.75 cts. or \$70.00 per 100
Select Tested	1.50 or 1.25 per 100	Select Untested	.90 cts. or 85.00 per 100

Price List of Our Swarms of Bees in Packages

1 lb.	1 to 50, \$1.25 each; ... 50 to 100, \$1.20 each; ... 100 to 500, \$1.15 each
2 lbs.	1 to 50, \$2.35 each; ... 50 to 100, \$2.30 each; ... 100 to 500, \$2.25 each

If queens are wanted, add price as according to price list.

Our select colonies used for breeding purposes, larvæ, and select drones, are those of the highest standard, the choice of over 1000 hustling, honey-producing colonies of pure Italian bees. These select colonies are located in our queen-yard at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva used in grafting is as small as can be seen and handled, having just come out of the egg. All cells are drawn and nourished in strong ten-frame colonies just running over with young bees. Thus we are able to produce large, long-lived and hardy queens, which give workers unexcelled for honey production.

Our capacity is 6000 queens and 5000 pounds of bees a year, or 50 queens and 100 1-lb. swarms a day. All queens warranted purely mated or are replaced free of charge.

Safe arrival and satisfaction we guarantee or we refund your money.

We have no disease, and foul brood has never been known in our community.

Book your order now; only a small cash payment required.

M. C. BERRY & CO., Hayneville, Alabama---Successors to Brown & Berry

Largest shippers of young pure Italian bees in the South.

QUEENS OF QUALITY

The editor of *The Beekeepers' Review* and his sons have 1100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt colonies desirable as breeders from a honey-producers' standpoint. Likely, never in the history of beekeeping was there a better opportunity to test out the honey-getting strain of bees than this. Think of it, 1100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor season (with us), while the average of the entire 1100 being not more than 40 pounds per colony. We have sent two of our best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben C. Davis, both of Spring Hill, Tenn., and they will breed queens for the *Review* during the season of 1916 from those four superior honey-gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three-banded strain of Italians; also that of John M. Davis; while Ben C. Davis breeds that disease-resisting strain of goldens that is becoming so popular.

By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as a breeder. We will tell you. They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review*, and one of those famous queens. These queens are well worth two dollars each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber to *GLEANINGS* a subscriber to the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address with remittance

THE BEEKEEPERS' REVIEW, Northstar, Michigan.

Gleanings in Bee Culture

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CHICAGO.—There are very few sales of honey being made at this time, and under these conditions it is difficult to quote prices. The weather at this writing is about zero, and comb honey will not bear shipment without being injured more or less.
Chicago, Jan. 17. R. A. BURNETT & CO.

NEW YORK.—Clover, comb, No. 1 to fancy, 13 to 14; ditto, lower grades, 11 to 12; clover, extracted, 7 to 8; buckwheat, extracted, 6 to 7; California, extracted, 6 to 8; Southern, extracted, per gallon, 50 to 75; West Indian, extracted, per gallon, 50 to 53.
New York, Jan. 22.

CINCINNATI.—Very little honey is selling at present. We quote No. 1 comb at \$3.75 to \$4.00; No. 2 at \$3.50 to \$3.75; white clover extracted in cans, 7 and 9; amber in barrels, 5½ to 7, according to quality and quantity. For choice bright yellow beeswax we are paying 28 cts. per lb. delivered.
Cincinnati, Jan. 20. THE FRED W. MUTH CO.

ALBANY AND SCHENECTADY.—There is little call for either comb or extracted; and from the many inquiries in regard to the condition of our market from producers, we judge there is still a large quantity of honey in their hands unsold, especially light extracted and amber. There is some demand for buckwheat. There may be an improvement later. January is not the best month in which to sell honey.
CHAS. MACCULLOCH.
Albany and Schenectady, Jan. 25.

ZANESVILLE.—The post-holiday lull is affecting somewhat the demand for honey, tho the market shows no material change as regards prices. In small lots the better grades of white comb bring around \$4.00 per case, jobbers receiving customary discount from prices to the retail trade. White extracted we quote at 9 to 11 cts., according to quantity. Producers receive for beeswax 28 cts. cash, 30 in exchange for merchandise.
Zanesville, Jan. 22. E. W. PEIRCE.

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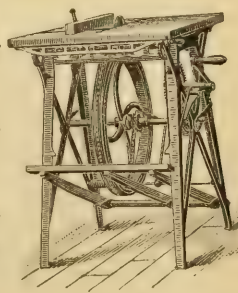
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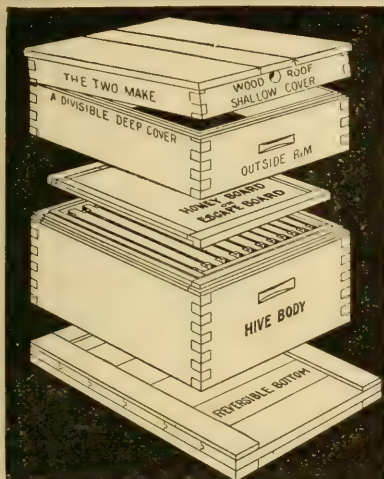
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ALLEN LATHAM.

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on shares. Write for special prices.
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Apiaries, Glen Cove, L. I.

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American Bee Journal for 1916	1.00	
Gleanings for 1916	1.00	
One REVIEW HONEY QUEEN	1.00	
Total	\$4.00	

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Guilford, Vt.

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128 Grand Ave., Kansas City, Mo.

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We allow you 30 cents a pound in trade for good average beeswax delivered here.

Finest extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

Walter S. Pouder, Indianapolis, Ind.
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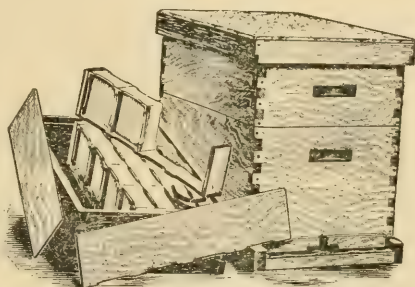
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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

FEBRUARY 1, 1916

NO. 3

EDITORIAL

REPORTS from our California readers indicate good rains thus far. One letter written January 14 gives the rainfall to date as over 15 inches, nearly 6 inches more than last year at the same time.

WE must beg the indulgence of our readers a little longer till we can catch up in our printing department. One thing after another has come in upon us, and these, together with the yearly index, have kept us behind. We are running almost night and day, and hope to be caught up by another issue or two.

The 1916 Spelling in Gleanings

AMONG the new year's resolutions we put into practice for this year is a typographical one. As our discriminating readers have noticed, we have discarded a few of the old and prolix forms of spelling which have come down to us from Saxon days without any real reason for their being.

In short we have adopted the list of ten words picked out by the National Educational Association as worthy of simpler spelling. The following are the words: thru, thruout, thoro, thoroly, tho, altho, prolog, program, catalog, and decalog. The old forms for which these are substituted are familiar to every one.

This list has been adopted by some of the best magazines in this country. Among farm papers, *Successful Farming* made the change just recently. So you see, far from being faddists, we are simply falling in with progressive journalism.

The Lament of Job

OUR old friend Holtermann is "all in the dumps" over European foul brood. (See page 116). Like the Job of olden times, to whom he compares himself, he has friends who not increase his distress. He wants to know if there is any one who has been able to stamp out absolutely European foul

brood after it had gotten a hold in an apiary. He is not interested in the fellow who claims he has cured it but yet never got entirely rid of it. How about Dr. Miller? Is there not some one (if not the venerable doctor) who can give our friend a crumb of comfort? While there are some who have an utter contempt for American foul brood, there are others who care no more for European foul brood than they do for a case or two of bee paralysis or laying workers.

Verily we believe that our correspondent is seeing only the dark clouds and not the silver lining that breaks into a nearly clear sky.

Care of Comb Honey during Winter Months; How to Prevent Granulation

EMPHASIS cannot be laid too strongly on the importance of keeping comb honey at a temperature as warm as the living-room. It is almost equally important that it be maintained uniform. A temperature down to 65 that is uniform is not as favorable to granulation as a temperature of 75 during week days, and then going down to 40 or 50 during Sunday when everybody is gone from the warehouse or store. Comb honey that has started to granulate can be checked by keeping it at a uniform temperature of 80 or 85. At the last-named point, however, there is some danger of the combs sagging and leaking.

We are satisfied that a majority of stores and warehouses where comb honey is kept have variable temperatures — sometimes down to 50 and even 45. A large number of honey-buyers do not realize the importance of keeping comb honey uniformly warm while in storage, and they will pay for it dearly before next spring.

Where natural gas is cheap the temperature can be controlled very nicely. A soft-coal fire or a wood fire is too irregular. A gas-stove or a stove burning hard coal will usually maintain a temperature of somewhere about 75; but when the weather outside warms up, the fire should be reduced.

A temperature of 85, dropping down to 70, back and forth, is not as favorable to anti-granulation as one of 75 maintained day in and day out every hour of the day.

A New-old Cure for European Foul Brood

WE would call particular attention to the article by Timberline Riggs, on page 102, on the new cure for European foul brood. While at first sight it might seem as if the cure were new, yet in view of the fact that it involves the fundamental principles used in the treatment of this disease, the cure is really old.

We have had talks with the New York State inspectors, who have had more experience with European foul brood than perhaps any others. We have heard them, time and time again, urge the importance of vigorous Italian stock, and keeping all colonies strong; and not only strong, but in a prosperous condition, and that means, of course, feeding if they are not liberally supplied with stores.

Mr. Riggs speaks of contracting the space occupied by nuclei. From conversation with inspectors we are of the opinion that it is unwise to fuss with anything but strong colonies. In this he differs from the accepted practice in the cure of the disease.

The Net-weight Law Effective within 24 States as well as in Interstate Business

A NUMBER of the different states have passed net-weight laws to conform to the federal net-weight regulation. Where there is no law operative in any state, it is not necessary that comb-honey producers, for example, mark the exact net weight or minimum net weight on their sections. But as 24 states have passed such laws it is important for us to know which ones they are. We wrote, therefore, to the Department of Commerce, of the Bureau of Standards, Washington, D. C., and received the following from the director:

Dear Sir:—This list is not presumed to be complete, as the session laws for the past two years have not been examined carefully except in the cases of a few states. We are anxious to bring this information up to date, but the press of other work has prevented us from doing so.

S. W. Slatton, Director.

Washington, D. C., Dec. 18

List of states having laws which require packages containing commodities to be marked with the net contents.

Arizona, 1913.—Foods: A large number of foods and classes being enumerated, but there is no gen-

eral statement. California, 1913.—“Provisions . . . apply to foodstuffs and stuffs intended to be used or prepared for use as food for human beings,” or eaten or drunk by human beings. Connecticut, 1911.—Food only. Florida, 1911.—Food only. Georgia, 1913.—Food only. Indiana, 1913.—All commodities to be sold by weight or measure, except commodities customarily sold by numerical count, or in gross, or in packages so marked as to indicate contents. Iowa, 1913.—“All dry commodities weighing ten ounces or more, except drugs, section comb honey, and those specified in section nine” (relating to berries). Louisiana, 1914.—Food only. Maine, 1913.—Food only. Massachusetts, 1914.—Food only. Michigan, 1913.—Food only. Montana, 1913.—“Any commodity or article of merchandise in a package or container.” Not applicable to packages selling for ten cents or less. Nebraska, 1913.—Certain food products only, some exceptions; statute does not include all food. Nevada, 1911.—“Any commodity or article of merchandise.” New Hampshire, 1913.—Food. North Dakota, 1907.—Food and beverages. New York, 1913.—All commodities except those for which special containers are provided. Pennsylvania, 1913.—All commodities. South Dakota, 1911.—Food. Tennessee, 1913.—Food. Utah, 1915.—Foods. West Virginia, 1915.—All commodities. Wisconsin, 1913.—Foods. Wyoming, 1911.—Foods.

Bureau of Standards, Dec., 1915.

In view of the fact that one's honey may be shipped outside of the state in which he resides, and be sold, we will suppose, where there is no net-weight law, such shipper would be liable to Uncle Sam. Whether a state has a net-weight law or not, it is always wise and safe to mark the net weight on every section.

Shall we Clip One or Both Wings of our Queens?

MR. D. D. STOVER, of the Stover Apiaries Co., Mayhew, Miss., seeing our article in the A B C and X Y Z of Bee Culture, wherein we recommend clipping *both* wings from *one* side of a queen, writes that he clips only the large wing on one side, leaving the smaller one under it intact. He has found it, he says, just as effective in preventing the flight of a queen as to clip both wings. Moreover, it does not mar the appearance of the little lady, and at the same time it makes it easier to pick her up.

We replied by saying that we were of the opinion that the one-wing plan would still leave the queen able to fly possibly a yard or more from the hive, and thus get lost. Mr. Stover came back by saying that, if the large wing is clipped close to the body, there will be no danger of the queen flying at all.

We finally referred the matter to Dr. Miller, who has had a very large experience on queen-clipping. His reply is so valuable that we are glad to give it to our readers:

A good many times it has happened that, when clipping a queen, I have taken off only

the large wing on one side. Such a queen is more easily caught, her beauty is practically unmarred, and I think she can fly no better than a queen with two wings clipped. But when I find a queen of that kind she is immediately caught and the small wing taken off. The mere fact that her beauty is practically unmarred condemns utterly the one-wing plan, at least for my use; for unless I can get a good square look at the one-winged queen I cannot tell whether she is clipped or not; whereas if both wings are clipped I can spot her with the least glance as she dodges around a corner. For one who cares much for the appearance of a queen and a little for the time spent in looking for her, the one-wing plan may be all right.

The last argument of Dr. Miller, that clipping both wings enables one to tell at a glance whether the queen is clipped or not, is a clincher. It might take two or three good square looks to determine whether a queen on the Stover plan has been clipped. It very often happens in the height of the season, when colonies are strong, that one glimpse is about all one will get of her majesty, so it is not altogether a question of looks but one of saving time when time is most valuable.,

How to Keep Bees Fresh and in a Normal Condition at Expositions

IN the initial article in this issue, by Prof. George A. Coleman, an interesting fact is brought out; namely, that an observatory hive can be placed inside of an exposition building having an entranceway thru an ascending tunnel 7 feet from the hive itself to the outside wall of the building. When we were visiting Prof. Coleman at the University last winter he raised the question whether bees could be made to go thru a long passageway. We told him we knew it had been done; but when he stated it was necessary to have a tunnel 7 feet long and 10 feet above the ground we had some misgivings.

The fact that the bees used this long runway as a means of exit and actually swarmed out of it is interesting and valuable, as it will solve the problem of live bees on exhibit at expositions and agricultural fairs. It also emphasizes the importance of making arrangements in advance to have the exhibition of bees and bee-appliances next to the outside wall of the building. When the exhibit is centrally located, the observatory hive must have fresh bees every four or five days; and even then they will be uneasy, crawling up and down the glass, seeking a means of exit. This nervousness or uneasiness causes an abnor-

mal condition, giving the public the idea that bees are generally on a constant run and excited, when the very reverse is true.

It is also interesting to note that the bees flew over the heads of thousands upon thousands of sightseers for months at a time, and no one was stung.

A Winter Case with Inner as well as Outer Walls for Holding Four Regulation Single-walled Hives

ONE of our subscribers, Mr. S. K. Best, of Youngstown, O., writes that he has seen nothing in GLEANINGS relative to a double-walled winter case for holding four hives. By this he means a case made up of matched house-siding for the outer wall, and cheap lumber for the inner wall, the space between the two walls being packed with straw or other material. In order to facilitate removal of the four hives set down in the inner compartment he would have a 1½-inch space for clearance which would really result in a dead-air space between the hives proper and the inner walls of the case. The four hives are each to be covered with an eight-inch cushion. Of course suitable provision has to be made for providing entranceways thru the packing and to the inner hives.

The advantage of this arrangement, Mr. Best thinks, would be that a given number of colonies could be put into winter quarters and taken out in less time than where the packing material had to be shoveled out of the cases until the hives could be uncovered so that they could be removed.

There is no use in trying to dodge the fact that the quadruple case of the Holtermann type involves a great amount of labor in packing and unpacking. The packing material must be handled over and over again at each operation.

One thing in favor of the plan proposed by Mr. Best is that some labor will be saved, but not much. By the Holtermann plan, from 300 to 400 colonies can be packed in a day by two men. The labor of unpacking and removing the packing would be about the same. Perhaps Mr. Best's plan would save half of that time. But suppose it saves three-fourths: the relative difference in the cost of packing and unpacking per colony would not be large. On the other hand, the double-walled cases would be considerably more expensive because an extra wall would have to be provided. Then there would be an objection to the dead-air space between the hives and the inner walls of the case. Cold air would be pretty sure to percolate thru the entranceway into the dead-air

space. While, of course, it is supposed to go into the hive itself, yet if it leaks and travels all around the four hives, a considerable portion of the benefit of the packing would be lost.

The large quadruple cases of the generally accepted type are expensive enough; and it is our opinion that it would actually cost more in the aggregate to make the cases with an inner as well as an outer wall. As a matter of fact, there is no advantage in the inner wall after the bees are packed, because the wall of the hive itself is sufficient. There is nothing like having the packing come in direct contact with the hives themselves. There is then no opportunity for circulating currents around the hives.

The Number of Colonies Needed to Pollinate Properly a Citrus Orchard

ON page 1000 of our issue for December 1st we made the statement in reply to Mr. Paul J. Davis, Glenn, Cal., that a much smaller number of bees are required to pollinate a citrus orchard, either in California or Florida, than an apple, peach, pear, or cherry orchard in the North. We have used the estimate of about a colony to the acre in our northern orchards, and this number in numerous recorded instances appears to have been sufficient to secure record-breaking crops of fruit. Considering the fact that there are only two or three days out of the whole blossoming time when the bees can mingle pollen, and sometimes not over two or three *hours*, it is apparent that we need many more bees in the North than in the South, where the blossoming time extends over two or three months, and where the weather is always favorable except for occasional rains. We are reminded that E. G. Baldwin, of Stetson University, Deland, Fla., who wrote an article on Florida beekeeping for one of the Florida papers, estimated that five colonies are needed to the acre in a citrus grove. See GLEANINGS, page 216, March 15th issue. He may be right; but *if* one colony per acre of trees in the North will do the work it would seem that one-tenth of that number would be sufficient in a southern grove. We have gone thru a large number of citrus groves in Florida and in California, and asked the proprietors if they had any bees there.

"None whatever."

"Are there not some in your locality?"

"Not that we know of."

And yet the significant fact was they were securing good crops of fruit. We have generally told these people that there

were more bees in their localities than they supposed, *and have never yet failed to find bees on the blossoms* in orchards where it was claimed there were no bees. These bees were probably wild, or in the hands of some person unknown to the owners of the grove, and yet the number was sufficient to do the work because the yields were good.

As nearly as we can estimate, one or two colonies could, in some localities, some seasons, take care of a hundred acres of citrus groves. Of course it would be advisable to have many more.

If we are wrong in our estimate of the number of bees required in citrus groves, it is important that we be corrected as speedily as possible in the interest of more and better fruit. The question of how many bees are needed in fruit orchards is being agitated not a little. We should be glad to get expressions from our friends—particularly from Prof. Baldwin, who has given the matter not a little study.

Later.—Since writing the foregoing the following has come to hand:

Lack of Pollination in Orange-groves

THE following clipping from the Hemet News, Hemet, California, was sent in by a correspondent. As we believe it states an absolute truth we are glad to place it before our readers.

BEEES IN ORANGE-GROVES.

Otto Lowentrou, deputy county clerk and long-time orange-grower, says in the Riverside Press:

"I believe that one of the chief causes why many of the Riverside orange-groves have gone back is because we no longer have bees here. It will be remembered," he said, "that when it was found necessary to prop the heavily laden orange-trees all thru the valley, bees were kept at many points thru the city. Then an ordinance against beekeeping in the city was passed, and orchardists who had kept bees as a profitable side line sold their apiaries. We have been told that the orange-blossoms are self-pollinizing; but until there is actual proof of this fact it would seem the part of wisdom to keep the bees inside the city. I do not believe that all orange blossoms pollinize themselves, and I feel sure that an investigation would show that our decreased orange crops are due in no small measure to the fact that bees no longer draw their honey store from our orange blossoms."

While we have said before that orange-groves do not need as many bees per acre as apple-orchards in the North, yet when there are no bees present it is very plain why the yield per acre drops down as stated in this clipping.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



I AM quoted in *Bienen-Vater*, p. 180, as saying in GLEANINGS that there is no buckwheat in America. That was heather (Heide), friend Richter, I was talking about. Plenty of buckwheat here.

GRACE ALLEN, p. 6, I don't believe a pound of two-to-one syrup equals a pound of honey for wintering. About 1.07 pounds comes nearer to it; but a little extra must be added to pay for evaporating out the extra water. Make syrup $2\frac{1}{2}$ to 1, and there will be no extra water.

RIETSCHKE foundation-presses are used by the thousand in Europe, beekeepers making their own foundation. But it's expensive business. Franz Richter once told about a beautiful lot, faultlessly made, but it took $2\frac{2}{3}$ times as much wax as for the same number of sheets of Weed foundation.

To get a label to stay on a five-pound pail is not easy. A good thing is to have the paper long enough to reach around the pail and lap over, with the label printed twice upon it. [If you get the right kind of prepared paste the label will adhere to tin. We have no trouble of that kind; but it is not an easy thing to make up a paste that will do it.—ED.]

SWISS beekeepers claim a near approach to non-swarming bees (black bees), and reports seem to warrant the claim. Of 293 reporting for the past season, 203 have had no swarm, 74 few, and 16 many swarms. Nor is this different from reports for a number of years past.—*Schweiz. Bztg.*, 424. I believe non-swarming bees are just as possible as non-sitting hens.

ACCORDING to *Leipziger Bienenzeitung*, p. 173, I tried for years to secure larger bees by having them reared in drone-cells. No, Pastor Fleischmann, I never tried the experiment. But I did get bees from Florida so large that their worker-cells were as large as ordinary drone-cells. How they were secured I don't know. And I don't know whether they were worth more than bees of usual size.

C. JUNGFLISCH reports, *L'Apiculteur*, 75, that he made a super from the boards of an old hive. It was well glued inside, and he planed and painted it outside. Blisters formed under the paint; and on trying to flatten them with his fingers he found they were filled with water. He reluctantly concluded it was better in summer to have

supers without paint, and still more important for hives in winter.

THAT diagram, p. 1010. Please don't fail to note that item of "undetermined matter," 3.68 per cent, or one in every 27 parts. Those things—iron, phosphoric acid, etc., are not found in sugar, and so they give to honey a value as food that is not found in sugar. Indeed, in some cases they make honey an invaluable medicine. Some day cane sugar will be considered a rather poor substitute for honey as an article of food for the human family—also for the bee family.

"Two men with a rope can carry bees in so that they will hardly know that they have been moved," p. 1015. Two men did better than that here, Dec. 4. With never a veil or a glove, each one picked up a hive, hugged it to his bosom, took it into cellar and set it in place, doing the job in just half the time they could have done it with a rope. But they were eight-frame hives; and if Doolittle says I'd be better off with larger hives, I'm not going to have any argument with him.

JUNG-KLAUS, the brilliant Sammal Korb man, quotes in *Deutsche Imker*, p. 184, a paragraph about my enthusiasm and record crop and then says that if it is true that 100 kilograms average per colony of comb honey is possible only in America, and there only by taking away all honey at the time of harvest, and then systematically feeding back—sugar. Guess again, friend Jung-Klaus. No man in Europe is more bitterly opposed than I am to sugar-feeding—have not fed a grain for years. Besides, as it was all comb honey you can see I could take it only from the supers, leaving the stores in the brood-chamber untouched. He further thinks that all my enthusiasm is for the "almighty dollar," and that a genuine bee-enthusiast will suffer ten years of failure and still carry in his heart enthusiasm for the little bee. True enough; but does it follow that success would kill such a man's enthusiasm? Even if that be true, I've had difficulties enough to keep my enthusiasm alive. At the end of my first eleven years of beekeeping, after having first and last bought quite a number of colonies, at one time having had 50 colonies, all I had to show for my eleven years of effort was two colonies! and I've had plenty of failures since then. Don't you think, Jung-Klaus, you can afford to credit me with a little enthusiasm? Just a little, please.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



January came in with a retinue of flying bees, buzzing flies, broody hens, and dandelions in bloom. This morning, Jan. 12, it was too warm outside, even hatless and coatless, to frolic comfortably with our strenuously playful kitten who runs when you chase and chases when you run. But this afternoon something broke in a storm, and a cold wave is now reported on the way. Warm mild weather it has been so far, yet damp and unseasonable, bringing colds and grip to countless people and causing the bees to consume their stores pretty fast. Morning after morning they have been out at eight o'clock, working up an appetite for breakfast. They seem to be wintering all right, if you can call this wintering. So far they have not worn themselves out generating heat, that's sure. But we should not like to face a long, lingering, chilly spring, with depleted stores.

We have been glad in each of our frequent winter rains that all our hives are tipped pretty well forward.

* * *

Use 5/7 of a pound of sugar for each pound of honey lacking, when feeding sugar syrup in the fall, Dr. Miller says, which is what I wanted to get. Mr. Bruce Anderson has recently sent me a newspaper report of the work in North Carolina of Mr. E. G. Carr, one of the Federal bee experts, and in it Mr. Carr recommends feeding one full pound of sugar for each pound of honey lacking in the fall. Perhaps Mr. Carr was taking into account the point raised by the editor, that, pound for pound, the sealed syrup stores may not be of equal value to sealed honey stores. [See Mr. Byer's comment in his department, this issue.—ED.]

In this report of Mr. Carr's work I was also interested to note that he advises requeening every second August, and also packing hives into winter cases in the fall, even here in the South. If the winter losses in the South are from 5 to 15 per cent, as Bulletin 325 estimates, perhaps better winter protection will do away with a large part of this, and being sure of queens in the fall eliminate most of the rest.

* * *

The new hive arrangement on p. 30, Jan. 1, interested me a lot. I feel as tho Mr. McCready has rather "beat me to it," as I had already decided that some day I should startle the beekeeping world with some bril-

liant plan of my own to do quite away with lifting. I have gravely considered this placing of hives alongside one another, also of tiering up on one end of the Long Idea hive; and then there are various other promising combinations still too vague to put on paper, but very superior, as one's own unformed ideas always are. I like some things in Mr. McCready's hive, and some things I don't. It looks unnecessarily spread out somehow, and seems like a more awkward arrangement than the simple long hive of Mr. Poppleton. I should think, too, that it would be more difficult working with the bees in the brood-chamber if the operator has to reach across a side super. ("Side super" sounds a bit contradictory, doesn't it? One might call them "wings," perhaps.) On the other hand, this arrangement makes use of equipment already on hand. Then, too, the snug way that the brood-chamber is tucked away in the center looks as tho it must have advantages. I can't help thinking that, while winter cases with their generous packing may bring about splendid results, there ought to be some less expensive way to accomplish the same thing—less expensive and easier too. Perhaps Mr. McCready is on the right line.

* * *

Another person that "beat me to it" is Mr. Pelham Grenville Wodehouse, according to the notice on page 35, Jan. 1, where mention is made of a serial story running in the *Saturday Evening Post* with a beekeeper conspicuous in it. Now, if Mr. McCready has evolved my effort-saving hive, and Mr. Wodehouse has written my story putting the beekeeper into literature, what, pray, is there left for me to do?

Oh heart of mine, we'll sing!
And Life's fair cup of gold
We'll fill as full of winey song
As it will hold!

A song of flashing bees
With swift, ecstatic wings
And dauntless mood that flies afar
And sings.

A magic-hearted song,
A song of big desire,
Of wonder and of witchery
And fire.

A yearning song and wild,
Whose haunting music streams
Across tired hearts, and brings them back
Their dreams.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



See here, Dr. Miller; I am a bit surprised at what you tell Grace Allen as to amount of syrup equivalent to a pound of honey sealed in the comb. I thought that was, pretty well settled some time ago. Up here 5/7 of a pound of sugar will not equal a pound of sealed honey, and a general average of experiments has shown us that it takes a full pound of sugar made into syrup to give the bees the equivalent of a pound of honey. This is for winter stores. I have no data, and know of no way of obtaining any to test the matter for any other season of the year. [See Dr. Miller's second "straw," this issue. —Ed.]

Here in this part of Ontario we have had a nice moderate winter to date, Jan. 10, with but little snow. As beekeepers, if we were looking for any cause to complain, the lack of snow would be the only thing offering for an excuse, as we have had no extreme cold yet, and bees appear to be wintering nicely. During the next four weeks we are apt to have our very cold weather: and during that period we like to see a good blanket of the "beautiful" over the clover and around the hives. For our latitude, abundance of snow is a normal condition for our winter season. When we lack this covering of nature, something is bound to suffer more or less.

For a long time I have been of the opinion that Wesley Foster was a pretty good sort of chap, altho I never have had the pleasure of meeting him. Just at present I have a much higher opinion of him than I have ever had before just because I read that letter from his honored father on page 1044, Dec. 15, relative to the question of taking human life, even as a matter of self-defense. The sentiments expressed in that letter are exactly the views held by myself, and I never have been able to reconcile the teachings of Jesus Christ as given in the Sermon on the Mount and in many other places with the view taken by thousands of his professed followers, that under certain conditions we may kill our fellow-men.

While on this topic I wish to give my hearty approval of an extract from the sermon printed on page 1043, relative to the claim made by some that the present war shows the collapse of Christianity. "It

is not the collapse of the Christianity that Jesus taught, but it is the collapse of the Christianity that the church has taught."

In the matter of advertising honey, and especially in getting it placed in high-class hotels and other like places, I called the attention a short time ago to the fact that honey is not popular because so many people actually do not know how to handle honey at the table. Just a short time ago I was talking to the manager of one of our best hotels in Toronto, and he mentioned this matter, saying that honey would be unpopular in the high-class hotels until some plan could be devised to give an individual service. At present nearly all preserves, jams, etc., as well as the soft varieties of cheese, are served in this manner, small jars with large necks being used, the manufacturers of the different foods putting it up at their factories. It seems to me that the cost of putting up honey in this way would be prohibitive for hotel use, altho it could, no doubt, be arranged for dining-car service where such high prices are charged the patrons. It is a problem worth investigating, for one who travels much knows that very few menus of our good hotels include honey.

RABBIT SPACING.

As the editor says on page 1098, self-spacing by hive-rabbits was tried many years ago. One of the first movable-frame hives sold here in Ontario, and called the "Thomas" hive, had this feature. But very few are in use today by the large producers. A notable exception to this, however, was the late Wm. McEvoy, who, if I am correct, used rabbits for self-spacing, and doubtless his sons who now run the business use the same style of hive. Judging by all the hives of this pattern that I came across while at inspection work, there would not be much danger of the frames jumping out of these rabbits of the hives if they were being moved, as they were mostly glued good and tight with propolis. But this would not be the case in Mr. McEvoy's apiaries, as they are very particular in their beework, and all excess of propolis would be removed. From the fact that so good an apiarist as Mr. McEvoy used these hives altogether, perhaps the principle of rabbit spacing has some virtues that have been overlooked by others who have tried them.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



WINTERING AND PROSPECTS.

Nineteen fifteen ended up with a precipitation above normal of nearly four inches. The mountains are well supplied with fallen snow, and prospects are good for sufficient moisture for the coming year.

Alfalfa is in excellent condition, and sweet clover is unusually abundant and thrifty.

The bees so far have wintered well, considering the amount of poorly ripened honey in the hives. They gathered honey clear into November; and as this honey could not be thoroly ripened, it is likely to cause trouble later on.

THE NATIONAL CONVENTION.

The beekeepers who attend the National convention in Chicago will be assured of a rare treat. Problems of national importance will be handled. There will not be the detailed business to be transacted this year so common in years past. We should have a feast of good things. Prof. Jager (it is hoped) will show us how to clean sections. Mr. R. A. Burnett will discuss the comb-honey situation from the dealer's standpoint. Editors Root, Dadant, and Townsend will discuss subjects they are expert in. We shall have the commercial aspects of beekeeping well represented.

There will be much valuable discussion, and we will have a banquet.

The Hotel Sherman, Chicago, is the place where our convention will be held, and a live convention is assured.

Come, and contribute your bit to the convention.

IDAHO WINTERING EXPERIMENTS.

Mr. Jos. J. Anderson's wintering experiments as described by him (page 1016, Dec. 15) are very interesting and instructive. A few things might be said in this connection that will add more light to the subject. In a footnote to Mr. Anderson's article Editor Root mentions that Idaho weather is similar to that of Ohio, but that the climate is drier. I take it that Idaho has about the same snowfall and cold weather, but a drier climate than Ohio. If this is the case, as seems true, Idaho has a damper winter than Colorado, Wyoming, Utah, Nevada, and Arizona. From my observation, dampness is far more fatal to bees than cold. This applies whether the cold is external to the hive or inside of it.

One thing that would be interesting to know is what the loss would have been had Mr. Anderson wintered one hundred of his

colonies on their summer stands with no protection. Mr. Anderson says, "With young and vigorous queens, a hive full of young bees, and ample stores, the battle is half won." Give me these conditions in Colorado, and the wintering battle is ninety-five per cent won. This subject is of intense interest to me personally, as I am wintering nine hundred colonies in Idaho for their first winter. They are packed in straw, except the fronts, and the straw is covered over with tar paper to keep out the snow and moisture. Eight hundred colonies of mine are wintering in Colorado with no protection whatever. Colorado and Idaho are different.

SPRAYING AND BEEKEEPING.

The spraying of fruit-trees and the alleged destruction of bees is a complex subject. In no case where investigations and experiments have been carried on has the work been sufficiently thoro to get at any tangible results. In California, the published results of experiments there performed are at once convincing to those who have passed thru spraying troubles, that the experiments did not duplicate the proper conditions. The published facts regarding the experiments in Australia (page 994, Dec. 1, 1915) are so very meager that it is surprising scientific investigators would attach any importance to them. The number of colonies is not stated, the acreage in bloom within two miles of the apiary in relation to the acreage sprayed is not given, and doubtless was not even considered. The information given is so very meager that such conclusions are valueless. Those of us who have lived in commercial-fruit districts and seen thousands of colonies destroyed in the thousands of acres of orchards, cover crops growing under every acre of trees (almost), realize the importance of this subject. We have seen thousands of colonies saved by being moved two and a half to three miles from the orchards. Honey crops have been saved by moving. It is so well established among hundreds of our Colorado beekeepers that bees cannot exist in commercial-fruit districts that a man who does not move his bees when spraying begins is placed in the same class with the man who allows foul brood to destroy his colonies when he knows how to cure the disease. And another thing, our experiment-station men are not trying to prove a self-evident condition false by a few half-planned, poorly conducted experiments.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

MEETING OF THE CALIFORNIA STATE BEEKEEPERS' ASSOCIATION.

A meeting of the California State Beekeepers' Association was held at the Y. M. C. A. building in Los Angeles, December 28, 29.

The question of whether it was the regular annual meeting or a "called" meeting remains undecided, there being a conflict of opinion on that point. This will be anything but a full report; for to give a full report with the feelings engendered would offend some who are now prominent in the work, tho to follow the usual course and say all was peace and enthusiasm would be handling the truth somewhat ruthlessly. To follow the undercurrents would make a report bristling with things not pertaining altogether to beekeeping. So I will confine my report to the proceedings as nearly as possible as shown on the surface, for the benefit of the great majority of beekeepers who were not present.

The meeting was called to order by Prof. Willis Lynch.

An invocation was offered by Mr. Albert Miller, of the Y. M. C. A.

After the address of welcome and response, the business of the meeting was called for. Here the first fire was drawn. President-elect W. H. Allen took the ground that no business could be presented, the regular annual meeting having been held in San Francisco in August, and that no business should now be transacted. The chair ruled against this contention; an appeal was made to the house, the house sustaining the chair. The program was then resumed.

The secretary's report was read and accepted.

Delegates from county clubs made reports, county inspectors following. Inspectors' reports were favorable, showing disease well under control, improved conditions prevailing in most sections.

"Possibilities of foreign markets" by Hon. S. S. Knabenshue (former consul-general to Ireland and China), was then heard. Mr. Knabenshue gave a fine talk.

The different strains of resistant stock, by Prof. Geo. A. Coleman, of the State University, was then heard. The best part of this was the announcement that the University had acquired the use of an island several miles out in San Francisco Bay on which the establishment of a bee hospital is to be undertaken, the object being to study disease, its cure, test disease-resisting strains, and make a study in general of the

bee with an idea of assisting the industry, keeping careful records of all experiments, and compiling valuable data for the future.

Practical wax-rendering by T. O. Andrews was interesting and instructive.

M. C. Richter gave a paper on marketing, giving a volume of export figures, which was altogether an instructive paper.

The exhibit committee thru Prof. Willis Lynch made a detailed report, which showed that, outside of donations from Stanislaus County and the A. I. Root Co., the exhibit might be better known as a private exhibit of Prof. Lynch rather than an association affair. An indebtedness of nearly \$1100 was shown. There had been some opposition to assuming this indebtedness, a resolution having already been passed to disclaim any expense of an exhibit. Prof. Lynch presented his report in a manner that showed that, to disclaim the expense after the secretary had admitted that Prof. Lynch had been told to go ahead with the exhibit, meant the repudiation of debt by the association. The report was finally accepted by a vote, after which Prof. Lynch, in one of the fairest talks ever heard in an association meeting, agreed to accept \$212 as payment in full, this amount representing the actual cash paid out of his personal funds into the exhibit, but not the expense of travel, five months' time of his son in charge of the exhibit, and numerous smaller considerations.

"The Western Honey Bee; Its Fraternal Status and Its Financial Straits" was the topic of the editor, J. D. Bixby. His report, while showing the journal at a point where it might be expected to pay its way in the future, still showed an indebtedness of \$214 printers' bill and \$199.90 editor's salary. Inasmuch as the editor had tendered a conditional resignation, making it obligatory on the association to provide funds to continue the paper or accept his resignation, some way must be found to finance the journal or cease its publication. The Consolidated Honey-producers of California agreed to take the paper over and assume all indebtedness. In the future the State Association will not own or publish a journal, but the *Western Honey Bee* will remain the official organ of the association.

The farewell address of President Lynch virtually closed the business of the meeting; and while many dangerous points had been faced that seemed would cause a rupture, all ended in harmony and good will, save, to be sure, some mental reservations.



CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



LIQUEFYING GRANULATED HONEY.

"The honey I extracted last summer is all candied hard; and while some of my customers seem to like it that way, the majority of them prefer it in the liquid form. Please tell me the required heat, and how to proceed."

The recipe which was given me some thirty years ago, at about the time extracted honey came before the public, was this: "Set the vessel containing candied honey on the back part of the stove where it is a little warmer than you can comfortably hold the hand, allowing it to remain there till the honey is all liquefied." With only a small quantity, this answers very well unless you forget all about the honey, build a big fire, and allow it to stay there till it reaches the boiling-point or nearly so. Where this is done, the honey not only changes color but the flavor is also very much impaired, especially for one who likes the delicate flavor contained in nice clover or basswood honey. Too much heat is always injurious, both as to color and flavor. We may consider 212° F. as the boiling-point of water; but honey brought to that degree of heat would be ruined; and therefore it is not safe to set granulated honey on the stove-top or its oven if the honey is to be marketed, since such heat is an unknown quantity. Moreover, the bottom of the honey in any receptacle where liquefied by dry heat may go above 212 degrees while the top is still in the candied form. For this reason I would not advise the novice to try the dry-heat plan save for a small amount used at home.

What is called here the "wet plan" is generally preferable for all purposes. This plan generally calls for the "wash-boiler," tho any open dish of suitable size is good. Some put pieces of brick or iron in on the bottom of the boiler to set the vessels containing the candied honey on; but those claiming to know say that wooden strips crowded in so they will not float are preferable, as such will not convey the heat to any part of the honey more rapidly than will the water in the heating-up process.

Having the strips fitted in, the vessel of honey is to be set on these, and cold water poured in by means of a long-spouted funnel till the water comes up around the vessels as far as the honey is inside. It is important that the heating be gradual, for the reason that the process of melting can-

died honey must be rather slow, as it is a poor conductor of heat. If the heating is rapid, that at the sides of the containing vessel would be melted and might be injured before that at the center was little more than warmed. This would be especially true if the vessel were of considerable size. If thru rapid heating the temperature at the sides of such a vessel goes above the highest point of safety, and is maintained at that point until the honey is all reduced, damage is likely to occur, altho the temperature at the center of the mass of honey may have hardly approximated the danger-point. I generally take from three to three and a half hours in bringing the honey to a temperature of 135 degrees, and rarely allow it to get above 150. An oil-stove is preferable to either wood or coal in that the flame can be rased or lowered at will, and thus a temperature of from 140 to 145 be kept as long as it is desired to have every part of the honey reach the same temperature. Basswood and clover honey readily liquefy, and become as clear as when first extracted, at a temperature of 145; but I am told that other honeys, like alfalfa, seem to need a higher temperature to bring them back to their original clear and limpid condition, at least a temperature of 160 being needed.

I find that an injury begins with clover and basswood honeys if they are allowed to stay any length of time much above 165; but as these honeys liquefy readily at a temperature of 135 to 145 the difference between the melting-point and the danger-point is so wide that there is no necessity for running any risk.

Some claim that if honey is put in glass cans and sealed up while hot it will not granulate again, and by this claim many a lot of honey has been injured, both in flavor and color, in that the term "hot" conveys to the average mind near or quite the boiling-point. True, if honey is brought to or above 212 degrees it will rarely granulate again; but the price of such honey will depreciate from one-fourth to no sale at all with most consumers of extracted honey, to say nothing of the injury which comes to the market by putting such before the people. I find that any honey which is liable to granulate will granulate again if only heated so as to liquefy it; but it does not granulate quite as quickly after heating as it did at first nor as quickly after each heating as it did after the one before.

GENERAL CORRESPONDENCE

EXTENSION WORK IN APICULTURE AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

BY PROF. GEO. A. COLEMAN, UNIVERSITY OF CALIFORNIA

Perhaps there is no one subject in all the realm of nature-study upon which the general public so much needs enlightenment as that of the habits, natural history, and anatomy of the honeybee. This is especially true when we consider the very close relationship existing between the bees and the agricultural and horticultural interests of man.

That there is a surprising lack of knowledge of even the most common facts now known in regard to the development of the workers, drones, and queen, and the general economy of the hive, may seem surprising, considering the number of journals devoted to apiculture, and the number of books published in which these topics are discussed. You would not doubt this, however, if you had to find answers for the thousand and one questions which the author has had propounded to him during the past eight months by people who really ought to know better. The most surprising thing to them seems to be that the bees are actually able to go out from the hive, gather the nectar and pollen from the flowers on the exposition grounds, and return to their own domicile without getting lost. As one lady expressed it, "Why, I should think you would be afraid you would lose them all;" and another, "Oh! you don't mean to say that they really go outside of this building and find their way back thru that tiny hole in the wall?" and when assured that such was the case, "Why, how really wonderful!" Then every one, adults and children, even the babies, are always anxious to have the queen pointed out to them; and on the rare occasions when her royal personage permits the operation of egg-laying to be witnessed, the favored few who witness it are simply entranced. The drone is usually taken as a huge joke, and becomes at once the butt of ridicule. The many operations of the workers in wax-secretion, cell-building, caring for the young, gathering and storing of the nectar and pollen, when explained, become so absorbing to a great many that they come around every time they visit the grounds "just to see how the bees are getting on."

Realizing that the Panama-Pacific exposition would offer exceptional opportunities for an exhibit of this kind, and for instruc-

tion in the matter of handling bees in the schoolroom as well as in the apiary, the author planned and has carried on successfully during the entire exposition period an exhibit, accompanied by demonstrations and lectures, which I believe is unique of its kind. It may be interesting, therefore, for you to know something about the manner of arranging this exhibit, apparatus used, and the results.

The "Observation Beehive Exhibit," as it is known in the catalog of the Panama-Pacific exposition, was organized primarily for the purpose of instructing the general public, and particularly teachers in the public schools, as well as pupils, concerning the habits, natural history, and methods of handling the honeybee.

The exhibit was placed in the Palace of Education, on floor space adjoining an outside wall, and occupied a space of 12x20 feet. The space next the wall, and extending out six feet, was divided up into three compartments, 5 x 6 ft. by 9 feet high, and a small office, which were enclosed separately with wire screen to confine the bees when they were being placed in the observation hives, or manipulated in any way. The space outside these wire cages was occupied by a table two feet wide by ten feet in length, upon which was placed all the best books, journals, circulars, and bulletins on apiculture, all wired down so they could not be misplaced but could be readily consulted. The exhibit also included a modern hive for comb-honey production complete, all the apparatus for the extraction of honey and wax, including an A. I. Root automatic reversible extractor, and all of the small apparatus and tools necessary in a modern apiary. On wall space at the end were placed two large charts illustrating, by means of paper models and drawings, bulletins of the United States Department, the anatomy of the queen, drone, and worker, the manner of secreting wax, collecting pollen, etc.—also some models of the honeybee, done in "modelen" by the pupils in the second grade of the LeConte Public School in Berkeley, which were particularly good.

The *special feature* of the exhibit, however, were the observation hives containing the live bees at work. There were three of

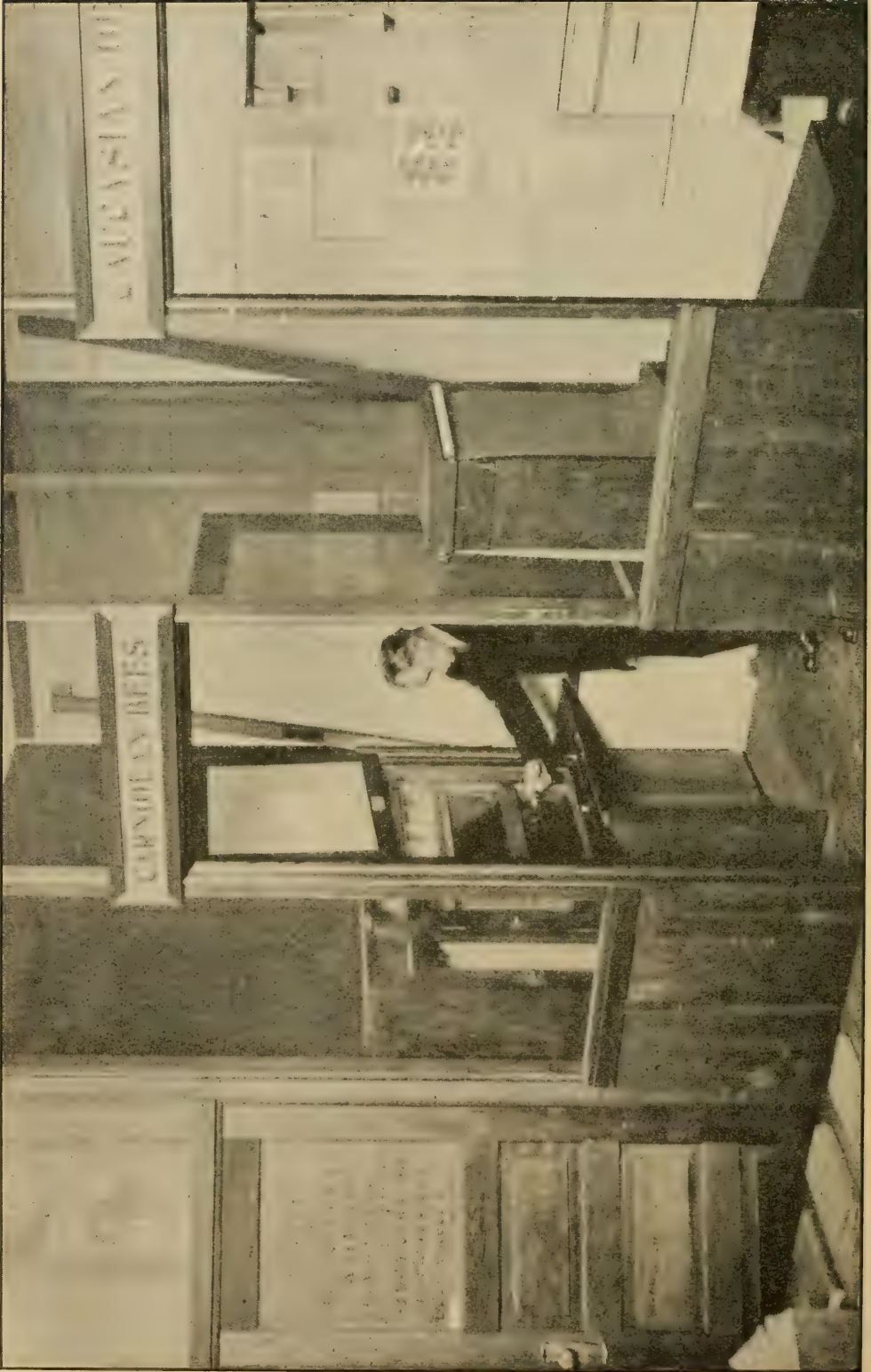


Exhibit of observation hives at the Panama-Pacific Exposition, in charge of Prof. Geo. A. Coleman. Note that the bees have to travel thru long tubes to reach the outside.

these hives, two of my own design and construction, and one of the eight-frame Root observation hives, one being placed in each of the three compartments, and containing respectively colonies of each of the three standard races—Carniolan, Caucasian, and Italian, in order to illustrate the characteristics and markings of each of these races of bees. These colonies were placed in the hives in April, and supported themselves thruout the exposition period of eight months, with no feeding except a very little at the beginning. The manner of connecting the hives with the wall and outside is very interesting as showing what bees will do when necessary. In order to have their entrance raised above the heads of the people entering one of the main doors of the building which was just adjoining the exhibit, it was necessary to place the entrance holes in the wall ten feet above the ground, leaving a distance of some seven feet between the hives and the wall entrance on the inside. This distance was bridged, and connection with the hive and wall entrance made by the use of wooden tubes, one by three inches in diameter by eight feet or more in length, and placed at an elevation of 75 to 85 degrees, with glass slides for observation placed at a distance of about three feet from the hive entrance. I have found no trouble in this arrangement, the bees going and coming thru this long tube as a matter of course, and removing dead bees and other debris from the bottom of the hive, carrying it all out thru the long tube to the outside. These hives were left open for observation for six to eight hours daily, after gradually getting them used to the light, which troubled them slightly at first, by leaving them open a short time every day at the beginning until they became so accustomed to the light that it did not seem to interfere with their work in the least.

This, I believe, is largely a departure from the methods of conducting exhibits at former expositions and many fairs, where they have consisted mainly of spectacular demonstrations of handling the bees with the naked hands, having them cluster on the naked skin, etc.—a method which has justly been condemned because it has caused trouble on several occasions, and at best gives people a wrong impression of the real habits of the bees and of the proper precautions to be taken in handling them. It has resulted, also, in a distinct antagonism on the part of exposition officials against such exhibits. For this reason the officials of the Panama-Pacific exposition at first refused permission to allow live bees

to be placed in the exhibit—even the director of exhibits, Mr. F. J. V. Skiff, expressing his disapproval of the plan, making it necessary to do a little missionary work and instruct the said officials, and, indeed, the entire board of directors, in the ways of the humble honeybee before the proper permission could be obtained. I count it, therefore, as one of the greatest victories won by this exhibit, that, thru the entire exposition period, there has not been one complaint from visitors or officials as to any annoyance from the bees, and they have had the entire freedom of the grounds, flying within a few feet of hundreds of people daily, including the throwing of four swarms which were duly hived in the most approved manner in the presence of the admiring multitudes. It also demonstrates the fact that the bees can be placed in the schoolroom, as also the exact manner of doing it, and kept there constantly under observation without any danger of annoyance to teachers or pupils, allowing the children to study their habits daily under normal conditions of non-excitement, a condition in which they are much more likely to retain the facts they learn than when they are under the nervous strain of something very startling. This fact has been abundantly demonstrated by the daily visits of hundreds of schoolchildren at the exhibit, and by their manifesting the most intense interest while there.

In connection with the exhibit, I have, since the first of April, given weekly lectures illustrated with a large number of stereopticon slides, of an hour's duration, on Saturday afternoons, in the Palace of Education Theater No. 1, consisting of a series of four lectures as follows: The Natural History and Anatomy of the Honeybee; The Handling of Bees; The Management of an Apiary; The Composition and Uses of Honey and Beeswax.

The attendance and interest manifested in these lectures was very gratifying. Starting with a handful of people, the attendance rapidly increased until I had the theater, which seats 150 people, packed, some standing in all the aisles and on the platform at every lecture. In this way I reached many thousand people.

The attendance at the exhibit was steady from the beginning, and counts made at different times showed an average of about fifty people per hour thru the busy hours of the day, which would mean several hundred every day, and many thousands for the entire exposition period. On the days when the schoolchildren visited the grounds we were simply overrun.

The exhibit was run entirely with volunteer help, consisting of students who were taking our course in apiculture at the university, and other people interested in the study of bees. Mr. A. C. Earl, a real-estate man, but a lover of bees, gave three half-days a week to it. Mr. E. H. Mosher, Principal of Emerson Public School in Berkeley, devoted considerable time to it simply because he was interested from the schoolroom point of view, and was much pleased with the results. Among those especially interested, I may also mention Mr. Augustus Downing, Assistant Commissioner of Education in the State of New York, who has expressed himself to me as very desirous of introducing the system into the

public schools of New York. The exhibit was also visited by many of the prominent beekeepers of the United States and other countries, all expressing themselves as much pleased with it. Mr. E. R. Root, editor of *GLEANINGS*, has taken a special interest in it, and my thanks are due him for kindly assistance in connection with it.

The exhibit has also afforded a good opportunity for handing out literature regarding our courses in apiculture, bulletins, etc., and of securing a large list of names and addresses of people interested in bees.

The exhibit was awarded a gold medal by the International Jury of Awards.

[See editorial comment elsewhere.]

A NEW CURE FOR EUROPEAN FOUL BROOD

BY TIMBERLINE RIGGS

In attempting to treat any disease one must first understand as fully as possible the nature and cause of the trouble itself. Without taking up too much space I shall, therefore, give a few of my views concerning European foul brood. If necessary I believe I can find facts to support these views.

Very near all of us have some theory or belief as to the method by which European foul brood spreads in a yard. I believe the most common theory, and the one which to me seemed most reasonable, is that it is communicated mainly by drifting nurse bees, the infection being contained in the food they prepare for the brood. As I understand the disease, in an infected apiary practically every colony is continually exposed to infection—of course to a greater or less extent, those with the most vitality being able to withstand it, and those with insufficient strength contracting the disease. The fact that many colonies, particularly the strong ones, are able to clean up European foul brood without any treatment would seem to support this.

In order for the disease to get a start, our bees must in some manner become weakened in vitality. Of course some stocks are naturally of low vitality; but any stock may become weakened temporarily. A knowledge of European foul brood and the habits of the honeybee, I believe, give us the following facts:

In the spring, colonies come out of the winter weak in numbers, and depleted in stores and vitality—in fact, at about the lowest ebb of the season. Nature at this time supplies them with the instinct for

brood-rearing, possibly, more strongly than at any other time. Under this impulse the bees raise all the brood they possibly can gather stores for, keep warm, and take care of, spreading themselves to the absolute limit of their brood-rearing capacity, of course the weather compelling them to keep no larger brood-nest than they can keep warm. With a very large brood-nest, such as is supplied in modern apiaries, almost invariably this period of brood-rearing must last longer than with a smaller breeding-room.

At this time it is quite reasonable to suppose that the bees do not feed their brood a bit more lavishly than is absolutely necessary. The honeybee is extremely provident and economical except in times of prosperity. With all the brood they can care for, and in a slight dearth of pollen or nectar, it is quite possible a lot of brood does not get all it really needs for its best development. This, it seems to me, *must* result in lowered vitality. We get inferior development and vitality in any of our domestic or other animals if neglected as to food or other necessities at any time during the period of its growth, and my experience tells me it is the same with bees.

Coincidentally you will find that it is at practically this very time that European foul brood does its worst damage. You will also find that increase or any weak colony at any period when the bees are spreading their brood as much as possible is quite subject to the disease. A colony that has reached its capacity for brood-rearing when there is an abundance of nurse-bees to take care of the brood seldom shows the disease

unless there is very little food coming in, when they are just as liable to starve their brood as a weaker colony. In my experience strong colonies never succumb to the disease when there is plenty of food coming in.

I have never heard of a case of European foul brood found in bees taken from trees. Has any one else? Yet these same bees transferred into a modern roomy hive in an infected locality quickly contract the disease. Bees in a tree, left to their own devices, generally have quite a small brood-nest; for if the cavity is large, surplus room is quickly taken up with surplus stores, and in the spring there is seldom more room than that supplied by winter consumption. As a consequence the period of extensive brood-rearing is much shorter, and the bees reach the swarming condition earlier. In other words, the chance of any brood being neglected is reduced to a minimum. How else can the immunity to European foul brood found in trees be explained than that they do not get a chance to spread their brood like other bees, resulting in more or less partial starvation and weakened vitality?

My explanation of my method of treatment of this disease is quite simple; but before giving it I wish to state that I do not claim that it is a proven cure or even proven experience to hold good in all localities and under all conditions. With my bees and local conditions it works so well that I consider it a cure. However, I have never handled black bees, nor have I ever experienced in my apiary European foul brood in its most virulent form, nor do I believe any one is liable to with good Italian bees. Possibly my method may not work with black bees or a different locality. I should hate to try to cure it with poor bees. The experience of others may contradict rather than support this article. I give it for what it is worth.

SIMPLY CROWD THEM!

Now for the cure: In the treatment of a colony or nucleus, no matter of what strength, take away every bit of room the bees are not fully occupying, or a little more, and then contract the hive down till the bees are *crowded*, using a division-board if necessary. They must not have unoccupied room if they are reduced to even one comb. If nectar is coming in, that's all that is necessary. If it is not, apply a stimulative feeder. I have not found it necessary to dequeen, altho if the case is bad it is liable to be because the stock is poor, and for this reason I would requeen the worst cases.

Their only fault may be an overtendency to spread brood.

In swarming time this is liable to result in swarming. Frankly, I do not use it much at this time, but unite all of the worst cases, making rousing colonies of them, dequeen, and feed as by the usual method of treating disease. However, with me I consider this treatment almost an annihilation of my investment, and only the worst cases are so treated—not as a cure, but to prevent the spread of the disease. However, I have very few bad cases—almost none in which the disease would overcome the bees if I cared to let them wait before treating. I must, however, admit that spring months in this locality are much more favorable than in most. Prior to swarming time, and while colonies are not yet strong, they may be more or less crowded, if necessary. In deciding whether a colony will stand this treatment, there is room for quite a bit of judgment and knowledge of the humor of bees and what they will probably do.

Sooner or later bees treated by this method will require more room. Do not give a colony super room until it can occupy and have use for it; and in giving nuclei additional brood-nest, never use drawn combs. Use full sheets of foundation and put it on the outside, at least with diseased nuclei, never spreading the brood. Your nuclei, you will find, will build up almost or quite as fast in the long run as if you had given them abundance of room.

In regard to brood-spreading, to me it has always seemed that bees do best where they were not given too much room, and they seem to make the room themselves just as soon as they really need it. I have never yet practiced brood-spreading where I knew that I derived any benefit from it. On the other hand, many times I know it has cost me money. There may be times when there is a profit in it, but I do not know when it is. Most beginners always make the mistake of giving too much room to their bees, and simply tingle with a burning desire to spread brood as soon as there is any to spread. I believe this is the most common and costly mistake beginners make, for verily it keeps the bees in a state of absolute discouragement and demoralization.

Of course, where one or two men are looking after six or eight yards of 500 to 1000 colonies of bees one occasionally has to give more room than the bees really ought to have, for in this case the item of labor is supposed to counterbalance any loss of crops. But where proper attention can be spared, I consider the giving of room



Algoroba-trees growing on the lowlands near the sea, on the lee shore of the Island of Oahu.

one of the fine points of judgment in the ordinary apiary manipulations.

Here is another thing I have found out: The strain of bees themselves is at least half the battle with European foul brood, for quite frequently a good Italian stock will clean it up of their own accord. I much prefer the leather-colored Italians, for I have noticed that the yellowest bees

are often most subject to disease. This crowding of brood, forcing the bees to feed and care for the larvæ more lavishly, is, of course, given only as treatment for European foul brood. I know of nothing but starvation, shaking, and destruction of combs for the treatment of American foul brood, altho for me it has very few terrors.

Overton, Nev. [See editorial.]

HONEY-PLANTS ON THE ISLAND OF OAHU, AS SEEN BY A MALIHINI

BY LESLIE BURR

There is but one honey-plant on the island of Oahu—that is, but one worthy of the name. There are numerous plants that yield honey. Some of them yield profusely, but they do not count in the crop. When the royal palm is in bloom it is alive with bees; but the royal palm blossoms only once or twice during the year, and each tree has its own individual time for blooming. Besides, it is planted only as an ornament, and is found only where planted, and that is principally in the city of Honolulu. That lantana grows everywhere—that is, when given an opportunity. It yields some nectar.

Then there are cocoanuts, dates, and other palms that yield some honey whenever they happen to be in bloom. Sugar-cane, when attacked by the cane-borers, secretes juice very copiously, and the bees step in and keep it from going to waste. Millions of dollars have been lost to the cane-planters of the islands by reason of the cane-borer, and the beekeeper seems to have been the only person to profit. This cane-juice honey is not an article that can be placed on the market for home consumption—not even if it is sought for by the bakers. In the past, prior to the war in Europe, it went to Ger-

many. That gathered last season by reason of the war still remains unsold. It is at the present time in storage, and will probably remain there until the end of the war.

The only real honest-to-goodness honey, worthy of the name, is that gathered from the algaroba-tree. The native name is "kiawa." In the United States, along the Mexican border, it is called "mesquite;" in the Spanish countries it is called "algaroba," and the botanical name is *Prosopis juliflora*.

The first algaroba was brought to the Hawaiian Islands by father Bachelot in 1826. He was given the seed at the Royal Gardens in Paris. The seed was given to him there with the seeds of several other plants—several that were thought suited to the conditions existing in the islands. It is not known just how the seed got to Paris; but the supposition is that it came from South America. From the original seed brought by father Bachelot there is still one tree alive. It stands on Fort Street of Honolulu.

Of all the trees on the island, the algaroba is considered the most valuable. Following its introduction it spread like wild-fire, and thrived under every condition it met. And there are many conditions that exist in but few places. At one place the annual rainfall may be over a hundred inches, while at a distance of a few miles the fall will average but a few inches. The cause of this varied rainfall is the mountains, which have the effect of spilling the rain out of the atmosphere, causing it to precipitate near the mountain-peaks.

Stock was the agent that distributed the

seed. Cattle are very fond of the seed-pods; and since the introduction of the algaroba the pods have been one of the principal stock foods. The seeds, however, are very hard, and are not digested unless they have been ground, and so were distributed. Wherever the seeds were dropped they grew as readily as any weed. Low land, whether wet or dry, seemed to be exactly suited to the algaroba. In fact, any kind of land on which a tree could grow seemed to be all that was asked. In some places they grow in dense thickets, in other places they are tall trees over three feet in diameter. Every piece of land on which it is possible for a tree to grow, if not dominated by the hand of man, is dominated by the algaroba.

The trees reach a height of fifty feet; have small pale-yellow flowers in cylindrical spikes, abruptly bi-pinnated leaves, having from six to thirty pairs of leaflets. The pods are gray, sickle-shaped, and from five to seven inches long. The trunks of the trees are not, as a rule, well formed, being either crooked or gnarled; but the foliage is beautiful. The wood is the best fuel to be found on the island; and as the growth of the tree is rapid it is possible to grow it for that purpose. The wood is used for other purposes than fuel, being very hard, with a beautiful color and grain.

The algaroba blooms during the summer months; yields nectar in a copious manner, which is of good flavor, color, and body; and it is the only good surplus honey obtained on the island.

Honolulu, T. H.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sightings among the Bees

BY H. H. ROOT

Every season we get a lot of reports from beginners, telling of the bees of some colonies being very large while those of other colonies are small. Frequently we receive samples of large and small bees. Of course, there is sometimes a difference in the size of bees in different colonies. But in the great majority of instances the difference in the size of the workers is due to the difference in the size of the abdomen, depending upon whether they are distended or contracted. Bees that have been feeding heavily, or those whose abdomens are swollen because of an overcharged condition of the intestines, look very different from

other bees whose blunt contracted appearance makes them look very much smaller.

The first illustration shows two worker bees, both of which are distended, the one at the left rather more than the one at the right. Altho both looked large there was an actual difference of about 1/16 of an inch in their length.

The second illustration shows a worker bee with a distended abdomen, then a worker with a contracted abdomen, and, last, an old shiny bee—from all appearances a robber. These bees were all taken from the same colony at the same time. So far as head, legs, and thorax were concerned they



Two bees with distended abdomens, making them look large, almost like a queen.
Photographed on Seed 23 plate; time, one minute.

were substantially the same size; but the difference in the entire length, including the abdomen, was very marked indeed. The black shiny bee at the right looks more like a diminutive drone than worker on account of the round blunt appearance of the abdomen. The bee itself, however, did not look quite so blunt as represented by the photograph, for the tip of the abdomen was turned down somewhat so that it did not show plainly.

SOME INTERESTING MALFORMATIONS.

In one hive we found several very curious-looking bees running about on the alighting-board. They were not making any attempt to fly, especially the one in particular which had no wings. The illus-

tration shows three cripples that were alive and apparently well when found. How long they would have been permitted to remain in the hive is hard to say. Some of them were so badly twisted that they had to turn around and look backward when they wanted to walk ahead.

There were no moths in the hive, no burrowing-moth larvæ thru the combs—nothing of the kind could be found to have mutilated the bees. We found these bees, however, just after a cold rainy spell when the sun and clouds seemed to be quarreling to see which could be boss the longer. The temperature, moreover, was alternately hot and cold. Perhaps the rather peculiar and unsettled conditions caused the queen to start more brood than the nurse bees could



Different sizes of worker bees from the same colony. Note that the abdomen of the first bee is longer than the wings, while that of the second bee is shorter than the wings. The third bee was an old shiny one—perhaps a robber. Photographed on Seed 23 plate; time, one minute.



Some curious examples of malformation. These bees were alive when found, running about the hive as cheerfully as any bees. Note that none of them have a full outfit of wings, and all of them are badly twisted and deformed.

care for, so that some of the brood was badly neglected—at any rate, the bee in the center, for instance, which, instead of having four wings, had only about half of one. It did not have the appearance of having had even the stub of the three other wings. It seemed to have matured without them. Perhaps a sudden turn in the weather arrested development, even tho these bees in the larval stage might have been well supplied with food.

The bees in these illustrations were not photographed alive, but were killed first by being placed under water for fifteen or twenty minutes, and then dried and sub-

jected to the fumes of hydrocyanic gas for about ten minutes. I have tried many ways of killing bees, but none that result so well as this plan. Bees kept under water even for several hours often have an annoying habit of coming to life again and crawling about just when you are ready to photograph them. If they are left under water ten or twelve hours they “stay dead;” but, strangely enough, they take on a rather water-soaked appearance in spite of all that can be done. If they are placed in the gas alive they curl up and get into such unnatural positions that it is impossible to make them look lifelike.

THE DISTRESS (OR SMOKE) METHOD OF INTRODUCING; WHY MEN FAIL

BY ARTHUR C. MILLER

The following letter introduces the article:

“I follow Mr. Miller’s method up to letting the queen run in at the entrance. Previous to smoking, a regular bee-escape board is placed over the cone to receive the queen. The colony, of course, is in one hive-body. Then I proceed to smoke *a la* Miller. Perhaps I had better say this bee-escape board is made air-tight. A tight-fitting plug (a block with a larger piece of tin nailed on to it) is inserted in the hole and all weighted down.

“I had a small flat wire cage, $1\frac{1}{2} \times 1\frac{3}{8}$ inches, which is open at one end. Into this I put the queen. I think that, if the queen is put into this cage without any attendants for twenty to thirty minutes previous to introducing, it will add the excellent features of the starvation method.

“Remove the plug from the bee-escape. Send in a good puff or two of smoke. Put the caged queen into this hole on the top

of the frames and close up the hole. In ten minutes give a small entrance (one inch); an hour or so later, the full entrance.

“Mr. Miller says the frames should be $\frac{7}{8}$ inch above the bottom-board (page 370, 1913). While I believe this is necessary to distribute the smoke, I believe it is almost equal to the mistake he cites on page 511, July 1, 1914, of introducing the queen to a full-sized hive, and not filling up the empty space to prevent the queen wandering into it. If the queen goes directly on to frames, well and good; if not, I believe there will be trouble. Hence this method of putting the queen directly on top of the frames.”

St. Louis, Mo.

J. H. FISBECK

Mr. Fisbeck’s use of an escape-board in queen introduction is a very convenient arrangement, and has been used by quite a number of people. It is particularly good where one’s hives have only a small or shallow entrance, as it makes possible the prop-

er smoking of the colony. But the fasting which he recommends in addition is quite unnecessary.

The so-called smoke method of queen introduction has now had several seasons' trial, and, like every other method of practical bee culture, has given varying results in different hands.

Beekeeping is far from a fixed science. The bees are a living organism governed by certain laws, reacting to external conditions, always reacting the same to the same conditions; but if the conditions vary, the reactions vary also.

Two persons attempt a certain method; one succeeds, the other fails. They wonder at the results, but do not see the cause. They may be assured, however, that the conditions were different. And until all beekeepers become past masters in the art of reading bee actions and analyzing conditions, we may expect wide variations in the results of the same methods in different hands. The best that can be done will be to explain and emphasize the conditions essential to the successful carrying-out of a method, and then leave each individual to work out his own salvation.

It is somewhat unfortunate that the method of queen introduction so closely identified with my name should have been called the "smoke method," for there have been several methods called by that name, and not a few of the older beekeepers confuse the new with the old. The old was a system of smoking the colony more or less and letting the queen run in, generally at the top; but closing of the entrance was *not* a part of that old practice.

The new plan is more properly called the "distress method," for by confining the bees in a smoke-filled chamber, and preventing their obtaining any relief by ventilation, a condition of distress is created which enables us to do as we please with them.

Thru the courtesy of Mr. Morley Pettit I have been enabled to see the reports of the various Canadian experimenters with this method as well as the many letters sent to me, and also the published reports; also at every convention I am asked many questions concerning it. From all this evidence I have been able to get a pretty clear idea of the causes of failure by different persons, but the successes far outnumber the failures, tho we might not think so from published reports; for so long as matters go smoothly the operators do not hasten to inform the press. Every little while, by a letter or at a convention, I learn of some big operator who has adopted the plan and of many a lesser light who uses it. For the

new comers, and those who are not familiar with the "distress method," let me repeat the instructions and then speak of some of the causes for failure.

A queenless colony has the entrance to its hive nearly closed, say all but an inch. Into this space a cloud of smoke is blown until the bees roar; then this space is quickly closed. In about a quarter of a minute a queen is run in and the space reclosed. In ten minutes more the inch space is opened and the bees allowed to ventilate slowly. That is the sum and substance of the method.

Here are some of the qualifying conditions: First, the hive must be smoke-tight. Open corners, warped covers, cracked floors, etc., are conditions fatal to success with this method. All possible chance of ventilation must be prevented. Second, the smoke must be such as to create the greatest distress and the least danger, and that sort of smoke is the thick white choky kind. Third, enough smoke must be driven in to fill the chamber so completely that no bee will fail to feel it. Fourth, the smoke and bees should be confined for ten to fifteen minutes, and then relief given slowly as by opening only an inch of the entrance. If the whole of the entrance is opened at once the bees may pour out in a mass and sometimes the queen with them. They soon quiet down, even with only the inch outlet, and when quiet the entrance may be fully opened.

Failure has been reported where introduction was tried on a small nucleus—two or three frames—in a full-sized body. The cause is usually insufficient or thin hot smoke or both. Other failure reports have to do with attempts to introduce queens to big colonies occupying two stories or having supers on. It is very poor beekeeping that calls for changing queens under such conditions. It is much like swapping horses while crossing a stream. When colonies are as big as that, or are at work in supers, for gracious sake let them alone! They are doing well and working for you, so don't queer the job by butting in. Plan to do the requeening at such time as little or no honey is coming in, and when the stock is comparatively small. In the northern United States and Canada, August or September will be found to be the most advantageous plan.

If conditions compel the introduction to big colonies during the harvest it is only necessary to be sure the whole hive, supers and all, are filled with smoke, and that no cracks let it leak out; then the queen will be as safe as when put into a smaller colony.

But it is tough on the beekeeper and tough-er on his bees.

Where a hive does not fit quite evenly to the floor, or a very *slight* crack is open between the cover and the hive, it is not always necessary to plug them up—just be sure the smoke is thick and white, and give a little more of it.

The best test is the tone of the bees' "roar." It is quickly learned, and the trained ear will instantly detect any undue subsidence, and more smoke will be given. I have several times noticed the sudden lowering of the "roar," and, on looking around, discovered smoke being blown from some unsuspected crack.

Create the distress; see that it is continued for about ten minutes, and you never need worry as to the safety of the queen.

As to the manner of running in the queen, use the handiest way—that which is easiest for you. If working with queens from one's own yard, taking them by the wings and tucking them in at the entrance, followed by a puff of smoke before closing the small space, is easy for all who are accustomed to handling queens. Sometimes it is easier to push the cover back at one corner, drive the bees back with more smoke, drop the queen in, followed by smoke, and close the cover. Putting the queen into a wire tube and holding the finger over the open end until the tube is pushed in at the entrance is another way. The escape-board on top as given by Mr. Fisbeck affords a very convenient place to drop in the queen or to put in an *opened* cage.

When running in a queen from a mailing-cage the end is opened and the cage is pushed in under the frames, and queen and attendants allowed to run in. My entrances are all an inch high so I can do that; and, by the way, if you see the attendants being

thrown out soon after you open the entrance you may be sure you did not give smoke enough, and that your queen is in danger. Pour in more smoke—thick and white, remember—and reclose the entrance for another ten minutes, at the same time making sure there is no leak by which the bees may drive out the smoke or obtain fresh air.

I find several advantages in the distress method over any other I know of. There is no long queenlessness of the colony, for the new queen may be run in at once on removing the old one, the only exception being where a colony has been badly overhauled in finding the old one. Under such circumstances, it is better to wait a few hours or over night.

Another advantage is the lack of any need of looking up queen-cells, as when a colony has been long queenless. If, however, it has been so long without a queen that a virgin may have hatched it will be necessary to find and remove her. And if a man must, he may safely introduce a queen by this method to a colony with laying workers, but it is a piece of poor beekeeping. Better add such a colony to one with a good queen, giving her the run of both chambers for a couple of weeks, then separate and give a queen to the queenless part.

Finally, the method yields the highest per cent of success. I lose less than one per cent of all queens introduced, and I can almost always trace such loss to insufficient smoke or some chance for ventilation.

In conclusion I would give one word of caution. Don't overdo the smoking, for it is possible to injure the bees and brood by an excess of smoke. However, there is more danger of too little than too much. Listen to the "roar" a few times and you will soon learn how much is needed.

Providence, R. I.

SOME OBSERVATIONS AND SUGGESTIONS ON THE SMOKE-IN METHOD

BY C. D. CHENEY

Upon the advent of any new method there are always some who try it with great success, and others who fail to make it work, with enough praise from the former and more than enough condemnation from the latter. The "smoke-in" method of queen introduction is a case in point.

Fortunately there are many open-minded and careful observers who, if given time, will ascertain possibilities and limitations so as to establish the conditions for successful general use, or determine the fallacy in the method.

While A. C. Miller, from his own intimate knowledge of conditions, can work the method with uniform success, others who undertake to use it can hardly be expected to meet with the same success, owing to their lack of that knowledge.

As time passes and experiences accumulate and are reported, some comprehensive instructions should be evolved on just how to manage the smoke-in operation to enable beekeepers at large to practice the method, even tho they do not know the "whyfore."

It is not necessary to repeat here any

thing in regard to why a queen is accepted in one case and not in another. It is generally agreed that when a new queen is once quietly among her new family there is little to fear for her safety. If the bees and the new queen can be brought to the same state of mind (sounds queer, but it is the best way we can express it), or distress, or what-not, there is no ground for a fight. When conditions return to normal, all thought of previous differences are forgotten and things are accepted as they then exist.

Every one knows that bees retreat before a puff of smoke; therefore when smoke is puffed into the hive entrance preparatory to running the queen in, the bees leave the bottom-board and the bottom-bars of the frames in a general route to get away from the smoke. The consequence is that, when the queen runs in, there is nobody at home, and she is alone to fight it out with the first guard she may meet. Such a condition is about as unfavorable to her acceptance as well could be, as all methods have for their prime purpose to get the queen into close relationship with a large part of the colony without causing suspicion or a quarrel.

It occurs to me that Mr. Miller's uniform



Bees working on prickly-ash, a scrub-like bush about 12 feet high. Photographed by D. M. Bryant, Ethelfelts, Va. [The original photograph showed upward of 20 bees working on this single branch.—Ed.]



Bees on milkweed. Photographed by D. M. Bryant, Ethelfelts, Virginia.

success is due, whether he knows it or not, almost wholly to using the right amount of smoke in the first place, and then awaiting the psychological moment to run the queen in when the bees have naturally surged back to the bottom-board in their desperate effort to make an escape. He is, no doubt, able to sense the moment when the queen will find everybody home and none looking for an intruder. May I suggest that the hive be lifted an inch or two, and then bumped down hard enough to bring a goodly bunch of bees down on the bottom-board a few seconds only before the queen is run in? The philosophy of this suggestion is that the queen becomes intimately mixed with the bees while *all* are in the *state of greatest demoralization*; and by the time things begin to be natural again she has reached the combs (still among her new family), and is at home. By bumping the hive, and so bringing a mass of demoralized bees down to the bottom-board, that "psychological moment" can be made to order, and utilized, as it would seem, without fail.

If this should prove to be the deciding factor between success and failure it will

thus be possible to eliminate much of the present uncertainty in the general use of the "smoke-in," and so make it available for everybody.

So many reports of failure with the "smoke-in" queen-introducing method contain, in substance, the statement, "I removed the old queen in the morning, and waited until evening to give the colony a chance to quiet down, and then smoked-in the new queen." One may feel justified if some importance be attached to those particular times of removal and introduction as affecting the result.

The morning removal and the evening introduction appear to be favorite practice, and during the past season I proceeded that way with three queens and lost the three. This set me thinking.

It seems perfectly logical to "give the colony time to quiet down;" but from observation and experience I conclude that in such circumstances the colony doesn't quiet down, and the result seems to bear out this conclusion. I desire to call attention to

these observations, and to suggest for study and experiment that bees really "quiet down" only at night (taking no account at this time of cold and wet days), which should suggest that the logical time for removing the old queen would be toward evening. Some time toward noon the next day, when the old bees are away on business, would be the best time for introducing the new queen. This plan would probably not influence results with any cage methods, but it "looks good" in relation to any run-in method.

The "smoke-in" appears to me as the simplest introduction method yet proposed; but it needs to be better understood, so that it will be practicable in the hands of any one, whether he knows or does not know why he is to do this or that. I have been giving considerable thought to this matter, and I am giving my observations and conclusions to set others to thinking, and in the coming season to experimenting, I hope, in order that some helpful knowledge may be developed.

Hoboken, N. J.

HANDY DEVICE FOR MELTING BEESWAX

BY J. H. TODD

I have just finished fixing sheets of foundation with melted wax, using a little device I have made for this purpose, and it works perfectly. I never could get on at all with the Vandeusen tube fixer; but my device is a pleasure to work with, and can be made by any one who can use a soldering-iron.

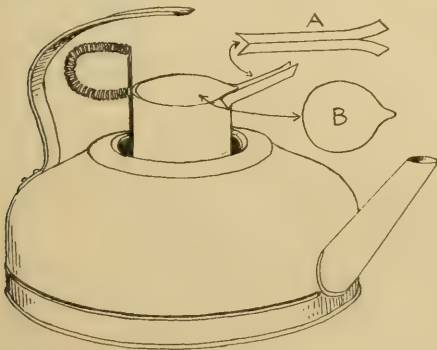
The first thing required is a wide shallow tea-kettle. Mine is 2½ inches deep and 8 inches in diameter. With a file, cut the han-

dle off so that it projects only a little way over the lid of the kettle. This is done because the steam condenses on the under side of the handle and drips into the wax.

It also gives more room for putting the wax-container in and out of the kettle. Now for a description of the wax-container. Get a small round cocoon or similar tin, about 4 inches deep and 2½ inches in diameter, or slightly smaller than the lid-hole of the kettle. Now there are two things to solder on—a spout and a handle. In the spout cut a piece of tin 1½ inches long and ⅜ inch wide. Now in a vise or with a pair of pliers bend this lengthwise to a V shape or angle of 60°; then at one end cut up the bottom of the V for a distance of ¼ inch and bend the cut ends as in A.

Now take the tin and bend the top like the spout of a cream-jug, as in B, and here solder on the spout, pointing slightly up so that its delivery end is ½ inch above the level of the top of the tin.

Now for the handle. Get a piece of galvanized spring steel wire and a piece of ¼-inch round iron (a bolt or something of that kind); put the round iron in a vise, and neatly and tightly coil the wire around it till the length of the coil is about 2 inches. Leave 1½ inches of straight wire at both the ends of the coil, and slip the coil from the bolt or round iron. Stretch it out a little so that light will show between the coils of wire. With a hammer flatten out



dle off so that it projects only a little way over the lid of the kettle. This is done because the steam condenses on the under side of the handle and drips into the wax.

the ends of the wire. Now get the tin; and, opposite to the spout, solder on to it one of the flattened ends so that the spiral spring will stick out at right angles to the side of the tin, and so that the under side of the spring is level with the top of the tin. Take the other flattened end, bend the spring upward, and solder this other flat end on to the tin close to the first one; but fix it with its end only $\frac{1}{2}$ inch down the side of the tin. This makes a good handle which will not get hot.

The working is, of course, plain. Keep the kettle boiling slowly on an oil-stove, with the tin standing in it. The tin, of

course, contains the wax, and also a piece of flat lead to weight it down. The little spout enables one to pour the wax just where it is wanted; and if the kettle keeps boiling, it is just the right heat, and with a little practice you can run the wax exactly right. After a time the spout fills up with cooling wax. It is then time to put it back into the kettle for a moment or two. A touch of the wax at the end of the spout sends it back into the tin. By the way, don't have too large a tin or it will prevent the steam that rises from the kettle from keeping the spout hot.

Renwick, New Zealand.

THE WATERS PATENT HIVE

BY W. WATERS

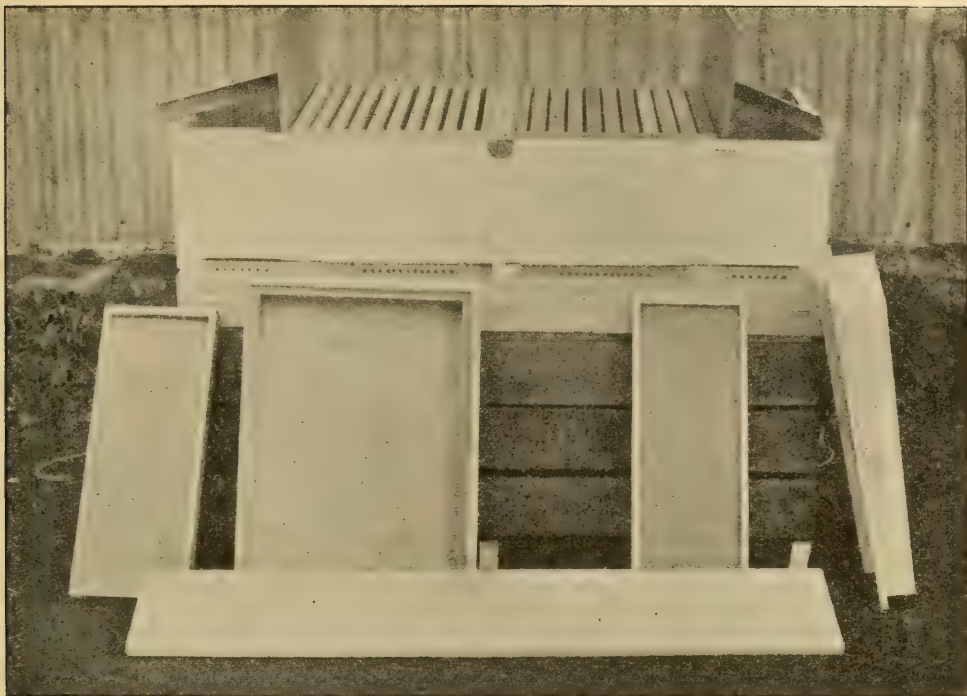
The season of 1914, 1915, in New Zealand was the worst we had had for many years, not only in point of honey production but on account of the large number of queens which failed to return after mating. In the ordinary hive, where the old queen was destroyed and the young queens failed to return, the work of these hives was practically lost for the season. A new hive which I have invented makes possible the presence of two queens in the same hive for a time, so that if a queen fails to return a new one

can be reared and no time of production lost in requeening.

The reader will notice from the illustrations that the hive is a double one, altho it may be made as a single hive. By inside measurements it is 46 inches long by $10\frac{1}{2}$ inches deep, and is divided by a single central division-board, surrounded by galvanized gutters two inches wide by $\frac{5}{16}$ inch deep. The sides of the gutter are turned over and made double, and rest on the central division. The hive on each side



Double hive, permitting two queens, if desired, as used by W. Waters, Papatitoti, Auckland, N. Z.



The interior of the double hive.

holds 11 frames up to the center of the side gutter. The side gutters are $1\frac{1}{2}$ inches wide by $\frac{5}{16}$ inch deep, and fit into keepers. They can be lifted out at will.

There are two movable division-boards of $\frac{3}{8}$ -inch stuff, one on each side. This makes it possible to increase or decrease the number of frames to the colony. There is room for 15 frames on each side.

Those guards at the entrances are of galvanized-iron, and ant-proof. They fit in behind a galvanized fencing wire turned in at the end, driven into the front board, and stapled at intervals. They are intended only for winter use.

The bottom-board consists of two railings, 3 feet by 2, each 4 feet long, which carry the flooring nailed flush with the rails back and front.

One great advantage of this hive is that it requires no lifting or shifting about the apiary, for all the work can be done without other appliances. I can say, after working the hive for two seasons, it makes beekeeping an actual pleasure. There is no necessity for extra bodies, covers, and bottom-boards. Where the hive is placed, there it remains.

We will suppose that a beekeeper has 50 of these hives holding 100 colonies, and he wants to requeen them all in the spring and

at the same time prevent swarming. He is sure to have ten colonies in his apiary with queens good enough to breed from. Go to these ten colonies, and in each case lift out the side gutter and pull out the movable division. Now take five frames with the queen and place them at the outer end, and back them up with a division-board and replace the gutter. As this hive takes eleven frames to the colony you will now have six frames with no queen left in the main compartment. Back them up with a rough division-board, and they will at once build queen-cells anywhere from ten to twenty in each colony. When those cells are from eight to ten or twelve days old, go to all your other colonies and do the same as with the ten, and at the same time give a cell to each queenless six frames. The queen will hatch out, mate, and be laying in due time. In the mean time the old queen has been laying uninterruptedly. When the young queen is laying, remove the old one and pull out the division. Slide the old queen's frames back to the others and replace the gutter and division-board.

This is a simple method of requeening an apiary, preventing swarming, as the young queen will not swarm the same season, and you can allow her another frame, making twelve if she wants them.

The hive is provided with two exits at the back, which enables you to hatch and mate two queens on those six frames if you wish to have spare queens. In that case you would separate three frames from the other three by a division of perforated zinc, giving the center comb of each three a cell.

This hive may be made at very little more expense than that of the ordinary hive. It is, moreover, far and away cheaper than the

ordinary hive in this respect. It requires no nucleus for queen-rearing and mating, and you are saved all the work therein. There is no handling and introducing of queens. You require no double plant of bottom-boards, bodies, and covers for shook swarming. All the work of the apiary can be done with this hive without any other plant whatever, and very much better, and at half the cost of labor.

Papatvitoi, Auckland, New Zealand.

STORES NECESSARY TO WINTER BEES OUTDOORS

Bees in Pound Packages from the South vs. Wintering in the North

BY J. L. BYER

On page 969 the editor, replying to a question of Grace Allen, stated that they figured on 20 lbs. of sealed stores, including combs, as sufficient for northern wintering, and that 25 or 30 would be better for the North. In my department for Jan. 1 I say that for here in Ontario the most of us would want double that amount, and that we would not have any trouble in getting it used by the time our main flow started in June. I further stated that Mr. Sibbald makes his ten-frame L. hives weigh 70 lbs. without the cover, and that many others insist on nearly as much.

Now turn to page 2, Jan. 1, and see what the editor claims I say: "Mr. Byer says he himself would require from 40 to 50 pounds of stores, and Mr. Sibbald uses 70 pounds." I have just been to one of the extracting-houses and weighed up some empty combs and hives, and the results are interesting to me, especially when compared with the "20 pounds, combs and all," proposition for outdoor wintering. Ten L. combs were selected from a pile of extracting-comb, these combs having some pollen in, but no more than would be in the average combs going into winter quarters with bees on them. I was rather surprised to see that the ten combs weighed 12 lbs. If old brood-combs weigh like that in Ohio, then 8 lbs. of actual stores, either honey or sealed-over syrup, I presume, will carry the bees thru the winter. My statement was that I would want double the amount specified, so that would make 40 minus 12 pounds for combs, pollen, etc., leaving a balance of 28 lbs. actual stores. How many outdoor winterers in the north will say that is too much? Please hold up your hands. Mr. Sibbald makes his hives to weigh 70 lbs. How does that work out in actual amount of stores? I weighed a ten-frame hive this morning, and found that it tipped the scales at 16

lbs. This hive has cleats all around top so it may be a bit heavier than the ordinary run. Sixteen plus 12 lbs. for combs, etc., makes a total of 28 lbs. Seventy pounds, hive and all, minus 28 lbs., means 42 pounds of stores—pretty generous allowance, I will admit, but still quite a long way from 70 lbs. As a matter of fact, I want more than 28 lbs. of stores in my hives; and at a rough guess I would say that all our colonies this fall would run, on an average, 35 lbs. No, this is not all used in *wintering*—indeed, not half of it is consumed during the cold winter months; but after brood-rearing starts nicely during the months of March and April the stores are rapidly turned into bees. Then, again, we often get a lot of bad weather during first two weeks in May, and, needless to say, a large amount of stores is needed then.

As to cost of wintering our bees, the estimate of the editor is high enough, to say the least. Let us figure that item a bit. He estimates a cost of from five to eight dollars per hive, figuring on that fictitious amount of stores, and reckoning said stores at 10 cts. a pound. In the first place, our bees do not winter on stores worth 10 cts. a pound—not by any means. Running for extracted honey, at the close of the white-honey flow we have little honey in a L. brood-nest. Any honey put in the brood-nest goes there during the latter part of the buckwheat flow; but more particularly if we happen to have a flow in September from asters or goldenrod, which does not often occur. This honey is not worth more than 6 cts. in the brood-nests, and would bring little more than that if extracted. The bulk of stores is sugar syrup, and that will stand us just about that figure too by the time it is fed. On my estimate of 35 pounds to that of Mr. Sibbald with 42 lbs., the result would be that it costs us for wintering between \$2.00

and \$2.50 per colony—quite a difference again, between those figures and the starters given in this editorial.

As to brimstoning bees in the fall, surely an unheard-of proposition here in the North, and the only mention I have ever seen in this line was on the part of a good friend in the South, who sells bees by the pound. The shipping of bees in combless packages can ever compete in the matter of producing surplus, with well-wintered full colonies. No, sir, "it can't be did." Whether bees will consume more or less stores here in Ontario than they will in Ohio—frankly, I don't know. As pointed out, what Dr. Phillips says proves conclusively, *theoretically*, that our bees should consume more; but as a matter of fact I am not convinced that all his claims in that line work out in practice. I know that during winter we have some thaws, causing the bees to get stirred up more or less, and yet not warm enough for them to fly; that if these thaws are at all frequent, our bees consume more stores than they do during seasons of steady cold weather.

The question of insulation is a difficult problem to settle satisfactorily; and while I believe in lots of it for our climate, I was somewhat jarred in this line when visiting friend House to see that while his bees were well protected on sides, rear, and tops, yet he had absolutely no packing in the fronts. Dr. Phillips says that the insulation of a hive is just as complete as its weakest place, so on that basis of reckoning the bees in House's apiary have no insulation except the inch board that comprises the front of the hive. It is not necessary to say as to how House's bees winter, and I do not attempt to make any explanation, but will leave that for Dr. Phillips to do.

As to the matter of snow over hives, I should think that in localities where they have many thaws snow would never be all over hives very long at a time. When snow is over hives very long we find that there will be large spaces melted around entrances, and there is no danger of water congealing there. Just at present I only wish we had snow over our hives here in York Co., as we have none at this date, Jan. 12, and we are apt to have severe weather during the next four weeks. However, I would not advise any one to take any chance on my advice not to worry over the snow problem, as we have had but three winters when our bees have been covered over so long at a time. Altho they have wintered so well so far, another season might tell a different tale. I expect and

hope that the north bees are covered over at present, and we are doing no worrying. Another thing, do not forget that I emphasized the matter of having a quilt over frames instead of a board, and that we want lots of absorbents over the quilts and an air-space between packing and tops of winter cases.

In conclusion, while there is a chance that my advice might not be the best for some localities regarding the matter of allowing snow to drift over the hives, if there is anything I am sure of it is this: that 20 pounds of sealed stores, combs and all, are entirely inadequate for wintering bees outdoors in our locality; and I again say, without any hesitation, that we want double that allowance to carry on beekeeping successfully here in Ontario.

Markham, Ont.

[The whole discussion hinges on a careless reading and an unfortunate misprint. On page 969 the little word "not" was omitted in the sentence replying to Mrs. Grace Allen. It should, therefore, have read as follows: "We should figure on 20 lbs. of sealed stores, not including combs." On the face of it, it might look as if it were an ingenious way to crawl out of a hole. Be that as it may, that this must have been the meaning is clearly shown by repeated statements to the same effect in these columns, and particularly in the A B C and X Y Z of Bee Culture, late editions. On this question we state that "the opinion of the beekeeping world is somewhat divided;" but we recommend "from 20 to 25 lbs. per colony of sealed stores." This statement has stood unchallenged in our A B C and X Y Z for the last three or four editions. In earlier editions we find the following: "See that every colony has from 20 to 25 lbs. of sealed stores." In the light of Dr. Phillips' experiments and the practice of beekeepers in the North where it is much colder than here, perhaps we should make the figures in the next edition read "from 20 to 30 lbs. according to locality."

The same lack of time, or carelessness, that permitted the little word "not" to be left out of the quotation above mentioned also caused the misreading of the statement as to the amount of stores that Mr. Sibbald found necessary for good wintering outdoors. We have no excuse to offer, except that at the time we had "too many irons in the fire."

But when the corrections are all made, we still consider that 42 lbs. is a large allowance, and 28 lbs. ample. Some of the time the beekeepers of Ontario will be compelled to use ten-cent honey. On that basis

it costs anywhere from \$2.80 to \$4.20 to winter a colony of bees. If they use a six-cent honey the figures will stand respectively \$1.68 and \$2.52. On the ten-cent basis the question may still be asked by some whether or not, if we take into consideration winter losses and the present price of sugar syrup, and the price of honey, some beekeepers could not afford to import bees in three-pound lots from the South. Understand, we do not argue this.

According to one Southern advertiser 3 lbs. of bees in 50-lb. lots would cost \$3.50. The express would add from 75 cts. to \$1.00 more.

On the 28-lb. basis per colony the wintering on a basis of 6 cts. would beat the pound shipments. On the 42-lb. estimate the difference with a ten-cent would not be great.

While buckwheat honey may not be worth more than 6 cts. per lb., a great majority of the beekeepers of Canada are not where they can get buckwheat. An aster honey is often dear at any price. Is it not true that most beekeepers use a good table honey? Sugar syrup is cheaper, but you argue that it does not go as far, pound for pound.

Wintered-over bees, you must admit, pound for pound, are not as fresh, vigorous, and strong, as young bees direct from the South. If you can shake more than three pounds on the average from your colonies in early spring, you are going some.

While you admit that Dr. Phillips' observations go to prove that bees in a cold below 57 would consume more stores, you are "not convinced that all his claims in that line work out in practice." Why not? Have you not observed that, the colder the winter or the colder the surrounding atmosphere, the more stores the bees will consume? Time and time again we have noticed in our own locality during a prolonged severe cold spell that our bees consume at least 50 per cent more stores than they do during a milder winter. It is the prolonged severely cold winter that causes dysentery, as a result of overeating to keep warm. Of course, if the winter is *too* mild the bees will use more stores because of brood-rearing. Hence it does not follow that you "should require even less stores than in Ohio."

With regard to Mr. House's practice, you failed to state that his yard is located in a deep gully, and protected by a high bluff. One would almost raise the question whether his bees needed any packing at all. Mr. House's practice hardly proves that plenty of packing is not needed.

We are glad to see that you admit, on the matter of hives buried in snow, that "there is a chance that my advice might not be best for some localities." There is, indeed, a big chance if reports mean anything. Some beekeepers, unless the statement were challenged, would get into trouble, we fear.—Ed.]

EUROPEAN FOUL BROOD AND MY KIND FRIENDS

BY R. F. HOLTERMANN

Job had friends who sought to advise him in his distress; but we know that they only added to his discomfort. So it appears to me to be with those doctors who so kindly volunteer information for my consolation. There is "Doctor" H. Harley Selwyn, who, on page 930, Nov. 15, states, "It does sound odd to me to hear of one who has been so long in the business meeting only now with this disease."

When I was a boy, and also since that time, I have been a good deal between country and city; and therefore, with divided experiences, I probably never knew very much of either. One thing, however, afforded me great amusement. When the city boy came to the country the country youth considered him as green as grass. When the country youth came to town he was, in the estimation of the town youth, a "hayseed." Each thought his experience was the

hallmark of wisdom. There are many beekeepers who have not had European foul brood among their bees; and I do not feel the richer for having had such experience.

Then comes Dr. J. E. Crane, on page 985, Dec. 1. He is a veteran. He attempts to encourage by stating "The shiftless beekeeper may well regard this disease as a serious matter if not an actual calamity."

There is nothing in Mr. Selwyn's article that affords me the slightest consolation. On page 413 J. L. Byer states, "We dread European foul brood more than ever, and, contrary to what Dr. Miller's sentiments seem to be, we have more or less contempt for American foul brood." I may flatter myself when I say that I think I am as well posted on the nature of the disease as is Mr. Selwyn. Some of the largest New York State conventions for several years have been attended by me to get the experience

first hand from beekeepers there, and I have again and again heard in public and in private the information the four New York State bee-inspectors had upon this disease, and this information still makes me dread the disease among our bees.

Mr. Selwyn's own article condemns his argument. He says, "Notwithstanding the fact that Italians can rise up in the midst of European foul brood and overcome it, I believe that they must suffer first (some worse than others) before becoming immune to other ravages." Taking this to be a correct statement, should it be no cause for anxiety? Is this period of suffering of no practical interest? As I said once before, I doubt if a strain of bees is immune in one locality and not in another. I doubt if there are any scientific data for such a claim.

Now as to Mr. Crane: I have put into winter quarters 748 colonies of bees. There has been plenty of work each season without looking after European foul brood; in fact, it has practically always been a case of doing what has been considered the most

important, and leaving that which was the least important undone. With what I would consider a pretty extensive business, the addition of this disease to look for and stamp out will add very much to my care, to say nothing of the loss thru dead larvæ which would otherwise develop into a working force. We have not only to get rid of the disease, but we have to look for it in every colony. I shall consider that, for the safety of our own bees, as well as a duty to other beekeepers in the vicinity. The bees, as far as possible, should be prevented from coming in contact with diseased larvæ.

To save any one from further trouble, let me say that, after closely questioning quite a number who have had the disease (European foul brood) among their bees, after reading pretty well all that has been written about the disease in American bee literature, and after a season's experience with the disease, the kind of man whom I wish to advise me is the one who has stamped out the disease after it has spread among his bees, not one who admits he has never got rid of it.

Brantford, Canada.

IS THE BLACK BEE THE STRONGER?

BY WILLIAM BEUCUS

If we introduce a few Italian queens in an apiary and secure a general sprinkling of yellow thruout the yard, and if, then, we leave the queens and drones to cross as they please, we shall find that the yellow color of the workers gradually disappears. Observation of this phenomenon has caused many beekeepers to assert that the black bee is stronger, more predominant, and, therefore, the better bee. Now, it appears to me that this is not necessarily so, and that a satisfactory explanation of the reversion from yellow to black can be given.

If I remember rightly, it was Darwin who called attention to the fact that, if a number of varieties of fancy pigeons, such as fantail, pouter, etc., of various shapes and colors, be crossed, and the process then continued with the offspring, the shapes and colors will become less extreme, and in time the contrasts will disappear, leaving as a product of this crossing of breeds the original wild rock pigeon with its distinctive shape and markings from which, by a gradual process of selection, all varieties have been bred.

Now the explanation is as follows: In every species there is a constant tendency to variation—that is, there are small indi-

vidual differences. But these small variations are not all in one direction. They are in numerous directions; hence, in crossing, the individual peculiarities cancel each other and leave in the offspring the size, color, markings, etc., common to the species as a whole. Thus the species remains a constant. But man watches for variations in one direction, and by crossing with each other individuals showing the same divergence he intensifies, strengthens, and makes permanent that divergence. Now, if two or more divergences are made from the same original stock, as in the case of the pigeon, there still remains in the several varieties an obscured tendency to assume the characteristics of the original stock. The crossing of the varieties with each other thus mutually cancels the tendencies to assume their various forms, colors, etc., and strengthens the tendency to assume the form, color, etc., of the stock from which they originated because this tendency is common to all variations.

It seems to me this explains the tendency of the Italian bee to lose its distinctive color and revert to the black. The black is the older race from which the yellow has varied. The fact that Italian queens and drones are

by no means all tinged with yellow is pretty strong evidence that the black is the original stock and the yellow a derivative. But if the individual differences in the members of a species cancel each other, how could the distinctive yellow color have become so pronounced? It is impossible to give a positive answer to this question.

It is possible and probable that yellow was intensified in some locality thru a process of natural selection, the bees showing this characteristic having a better chance under changed conditions to survive. In our northern country the black bee would have the better chance because of the rapid absorption of heat during exposure to the sun. If you will watch carefully on a cool day, when there are clouds, you will find that whenever the sun is obscured the flight of bees from the fields to the hives decreases; but with the reappearance of the sun the flight at once increases. Throw a handful of dead bees on the snow in March, and you will see that they sink an inch or more below the surface. It is because heat is absorbed which melts the snow in contact with the bee. The lighter the color the less the heat absorbed. If these bees flew from the hive the darker ones would be warmed up quicker and have a better chance to return. In a warm country such as Italy, possibly the absorption of heat is not beneficial but injurious, or perhaps yellow made

possible the more easy escape from enemies. That the yellow bee reverts to the black is a common belief, and is indeed true; but this does not prove that the black is the stronger. It would be possible to breed yellow bees for extreme strength, hardihood, and yet these same bees with unusual strength in crossing would revert to the black. Yellow color in Italian bees is the conspicuous mark by which they are distinguished from the German bee. Beekeepers have associated this color with certain desirable qualities such as quietness on combs, resistance to moths, and energy in cleaning the hive and keeping it clean. Naturally they have assumed that an intensification of color was necessarily paralleled by an intensification of various desirable qualities. Hence the breeding for color which may or may not accompany hardihood, energy, excellence in honey-gathering, longevity, etc. This explains the disappointment of those who find that the extremely yellow bees show no better results in honey crops than the blacks. And when, at last, it is undeniable that some of these fancy yellow bees are not keeping pace with the blacks to which they are reverting it is assumed that the black is the stronger. The real truth is that the black is the original stock and the yellow the derivative, and that, as far as strength is concerned, either may be stronger than the other.

Cadott, Wis.

A SINGLE-COLONY WINTER CASE

BY WILLIAM G. RUSTGEN

Here is a sketch of a single-colony winter case. The bottom-board has two inch-strips (not shown in the diagram) for the hive

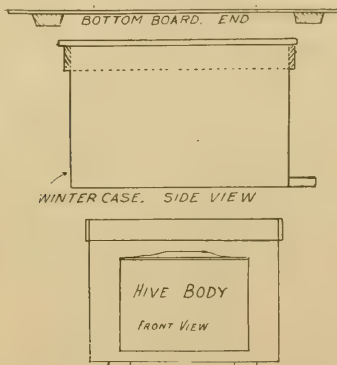
which is made of $\frac{7}{8}$ -inch boards cleated together.

In the fall, when the bees are to be packed, each colony is lifted off its bottom-board and placed on the bottom-board of the case. Then the case is set over the hive, and the space between is filled with packing material, and the telescope cover is put on top of all.

The bottom-board cleats on which the hive rests are 26 inches long. The hive covers 26 inches, and a four-inch board covers part of the rest, and the other two inches project beyond the end of the case. This has a piece $16\frac{1}{4} \times 2$ cut out for the end of the bottom-board to go thru.

A two-story hive can be accommodated by putting on another-story winter case. By this method a two-inch space is left under the frames, and the entrance, of course, must be contracted.

Dyer, Ind.



to rest on. The case is 25 x 30 x 14, and rests on the edge of the bottom-board,

QUEEN-EXCLUDERS

BY W. C. MOLLETT

I have noticed several comments on the use of queen-excluders by different contributors as to whether they prevent the bees from storing as much honey in the supers as they otherwise would. As to this, I think it may depend upon the kind of honey produced, whether comb or extracted. In producing comb honey in bulk or in extracting-frames I think their use is absolutely necessary if the combs are expected to be kept free from young bees—at least that is the case here. I produce only bulk comb honey, as it brings just as good a price as any, and, of course, the bees will store more honey in the shallow frames than they will in sections.

It took only a short time for me to find out that the use of excluders produces very much better results than depending upon the chance that the queen would not go up into the supers to deposit eggs. One spring I had put in full sheets of surplus foundation, and was expecting a fine lot of basswood honey, when, on examining them just before the flow of honey from basswood was due, I found that nearly all the frames contained eggs and larvæ in all stages of development. Of course this spoiled my chances for that season, and also showed that it was unwise to depend upon the caprices of the queens as to where they might deposit their eggs. In some seasons queens do not go up into the supers, but this is only the exception, not the rule. In producing section honey I do not think there would be very much danger of the queen going above to lay, as the supers are divid-

ed into so many different parts by the sections, separators, etc.

As to whether bees will store as much above an excluder as they would without it, I have never been able to see any difference during the main honey-flow; but I rather think that they will store more in the supers during the fall flow. However, as in most localities they do not secure much more than enough to carry them thru the winter from the late flow, this is not very important. I never have any trouble in getting bees to work in the supers during the main honey-flow, when I give them sheets of foundation, which I always expect to do, as I am convinced that the use of full sheets of foundation is a good proposition.

I notice that the price of zinc has been raised on account of the war. As the new wood and wire honey-boards are so much superior to perforated zinc I am not worrying very much. In my opinion the zinc excluder, entrance-guards, etc., are so much outclassed by the wood-and-wire ones that they will soon go out of use anyway. I have used the wood-and-wire excluders ever since they have been on the market, and am so much pleased with them that I would not use perforated zinc if I could get it free of charge.

The latest improvement in excluders, the ones with seven wires to each space, are still better than the ones that had only three wires to the space. I think that the new ones will, without any doubt, replace the zinc ones almost entirely in a few years.

Stonecoal, Va.

CORRUGATED-IRON BEE-SHEDS IN ARIZONA

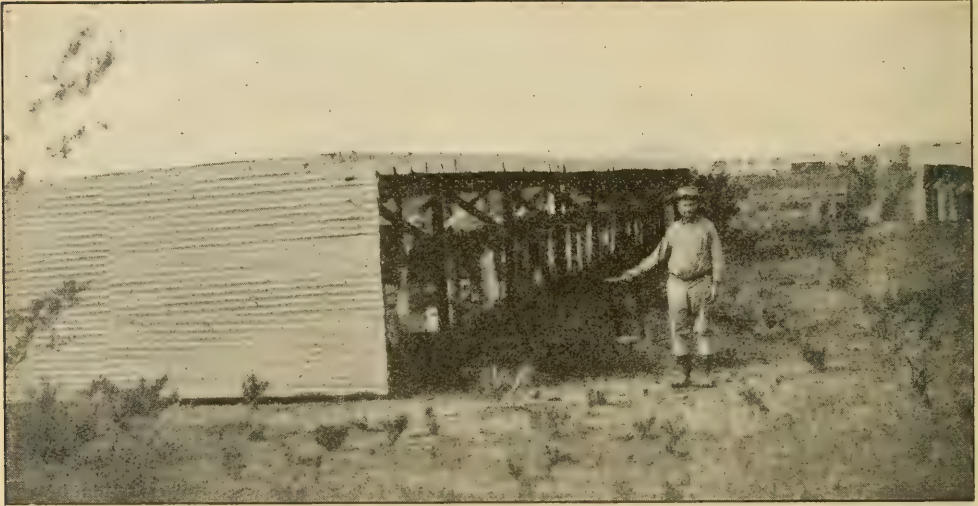
BY J. M. HERMAN

To show that all sheds in Arizona are not built of brush and barbed wire, I am sending a picture of my sheds which are built of corrugated iron. The posts are 4x4x9 ft., made of redwood timber. These are set in the ground so that they are 7 feet high on the north side and 6 ft. 8 inches on the south side. They are located 12 feet apart each way. The stringers are of 2x4 pine lumber, enough to make the combined length of the shed 108 feet. The cross-rests for the stringers are 2x4x12 feet; and the braces, 1x4x6 ft., are nailed to the posts and these cross-supports.

The corrugated iron is bent down over the stringers 16 inches on the south or

lower side, and 9 inches on the north or upper side. The pieces are nailed to the sides of the stringers as well as to the top, so that they are not likely to be blown off. The ends of the shed as shown in the picture are made of the same material. There is an aisle for a wheelbarrow between the rows of hives in the middle of the shed.

I have seven of these sheds in all, holding 800 colonies, two at the home apiary, two at the south apiary three miles south of Chandler, and three at the west apiary a mile west of Chandler. These latter are 132 feet long. The whole expense was about \$700, but I know that my bees are much safer from loss by fire.



One of J. M. Hermann's corrugated-iron beeh-sheds at Arizona. Mr. Herman has seven of these in all, which hold 800 colonies.

I once had almost a thousand colonies in one apiary in a mesquite location for sixteen months, and they did well, but 300 colonies is enough in an alfalfa location.

A MOVING SCREEN.

The screen that I hold in my hand in the picture is for moving bees. The frame is made of eight pieces of wood, covered with screen, the dimensions being such that there is about 1/16 of an inch play when slipped down over the top of a hive. I drive finishing-nails thru the front and back of the frame into the hive, allowing the nailheads

to stick out about 1/4 inch so that they can be pulled easily when I wish to remove the screen after moving.

I close the entrance with two strips of wood. The lower piece is two inches wide, and as long as the entrance, so that it will just slide into it. To the upper side of this a piece one inch square is nailed firmly. One nail thru this into the front of the hive keeps the entrance closed most securely, and yet the whole thing can be quickly removed.

Chandler, Ariz.

A "NEW" STARVATION METHOD OF QUEEN INTRODUCTION

BY J. ANDERSON

In GLEANINGS for Nov. 1, page 896, Mr. A. T. Rodman gives under the above heading a description of his method of introducing queens. This plan, however, is not new on this side of the Atlantic. It is thus described in the 1904 edition of "Simmins' Modern Bee Farm": "The three things of importance to be observed are as follows: (1) Keep the queen quite alone for not less than thirty minutes; (2) she is to be without food meanwhile; (3) and to be allowed to run down from the top of the frames after darkness has set in, by lamplight." Simmins proceeds to suggest a match-box as a suitable temporary receptacle for the queen, but continues: "My own practice is to carry the queens in the vest pockets, in small tubular cages made of fine perforated zinc or tin, one end permanently closed, while the other is pressed into a piece of

foundation after the queen is in. When ready remove the foundation and let her run into the hive."

Cheshire made exhaustive tests of the Simmins method, and gives his testimony in Vol. II.—Practical (published in 1887): "I tried many dozens of experiments, and found that by Mr. Simmins' method it was quite easy, not only to introduce but to get one queen to lay in half a dozen distinct hives in a single week."

There are very many beekeepers "in this locality" who use the Simmins fasting method with uniform success. It is not new, but it is, nevertheless, very interesting to find that there has been rediscovered in all its details a method described by Simmins more than thirty years ago.

Aberdeen, Scotland.

THE WINTER CASE ADAPTED TO SOUTHERN UTAH

BY M. L. SKOUGARD

Our bees went into winter quarters in fine shape. I never saw as fine a fall as we are having this year. My bees flew until Dec. 10, with the exception of a few days. I found them gathering pollen as late as Dec. 8. I pack my bees for winter. I use a winter case with four inches of wheat chaff between two inches on the bottom and a six-inch super on top, full of chaff, with a cloth over the chaff, the super lid, then the cover. I tack burlap on the bottom of the super to keep the chaff off the frames; then I put a piece of narrow blanket between the hive and super to keep outair.

As nearly as I can learn, I am the only beekeeper in southern Utah that packs bees

for winter. Beekeepers here say they do not need any protection. But in the spring is the time to tell. Last spring I gathered a nice surplus of dandelion honey. It is as pretty and yellow today as the flower itself. Mine were thru with swarming, and my bees were on the job when the other bees were just building up nicely. When some of the beekeepers learned that I was extracting so early in the season they said it was because I kept Italians, and had queens that I gave three dollars apiece for. I know that my queens have a great deal to do with it, and I know that the packing helps wonderfully.

Parowan, Utah.

THE MISSOURI APICULTURAL SOCIETY

BY AUSTIN D. WOLFE

For twelve years those in Missouri interested in the promotion of beekeeping met under the name of the Missouri Beekeepers' Association. At the twelfth annual meeting, held at St. Joseph, Dec. 7, 8, 1914, it was decided to incorporate and to attempt something of larger significance.

Having incorporated with Columbia, the seat of Missouri University, as the principal place of business, it became necessary to consider the ways and means of building up a constituency and of enlisting popular interest. In spite of considerations looking toward a meeting in December (notably the invitation to take position in the "circuit" formed by Mr. Pellett and Dr. Phillips) it appeared necessary to hold the first meeting of the incorporated organization during Farmers' Week at Columbia, January 4-6, 1916.

The result justified the decision of the executive committee. Two large rooms in the Horticultural Building were allotted to the society. One of these was used as an assembly room, with display of literature and honey. The other was a general laboratory, with no less than six different models of hives and an almost equal number of supers, all occupying one long table. On another table were the implements of the craft, many if not most of them being home-made and of practical value, which casts no discredit on a manufactured article, but merely says that the former variety will answer just as well. Then there was an extractor, a home-made uncapping-can, knives, hive-tools, nailing-frame, wire-imbedder, etc.

This being the first meeting since the granting of a charter, a constitution and bylaws were adopted. Then the program contemplated a discussion of beekeeping from the start for the benefit of the novices. Treasurer J. F. Diemer, of Liberty, unable to be present, sent a short spicy paper on "How I Began." E. B. Gladish, of Higginsville, also unable to appear, sent his brother, Mr. Charles Gladish; and the presentation of Mr. Gladish's subject, "What Hive shall I Use?" led to a discussion which soon brought out the fact that bee-men generally are discarding the eight-frame for the ten-frame hive, with the Hoffman-Langstroth frame.

The society is most fortunate in coming at once into close relations with the Department of Horticulture of the State University. Dr. Leonard Haseman, associate professor of entomology, aided by an admirable working model of a bee, delivered a plain and very interesting lecture on the anatomy of the bee. It was the kind of lecture that would entertain and instruct a gathering of farmers or of scientists—just the thing for a rural school.

But all the time there was a stream of visitors who asked to be "shown." On the last day the program was entirely abandoned, and Mr. Tyler, Professor Haseman, and Mr. Darby had their hands full as they took class after class—a few individuals in each group—past the tables, explaining the nature and purpose of the hive, how and why it is constructed, answering questions on the manipulation and care of bees, elucidating the uses of the extractor and of the

different implements to be seen on the tables, and doing a general promotion work. Young men were there who wished to make their farm incomes greater. Students from the university were there, attracted by what they had learned in their courses in entomology; women and girls were there who liked honey and were willing to help produce it. Some teachers and county superintendents were there, who manifested a ready sympathy in the thought that boys and girls might take blue ribbons at school fairs for honey just as well as for corn, poultry, or puddings. The society gained a new outlook upon its opportunities, and the prospect is highly encouraging.

Officers were elected as follows:

President, E. E. Tyler, Columbia, Mo.; vice-president, Emil F. Nebel, High Hill,

Mo.; secretary, Austin D. Wolfe, Parkville, Mo.; treasurer, J. F. Diemer, Liberty, Mo.

The tone of the convention was in a marked degree optimistic, and the prospect before the society is better defined than ever before. Without entering into details it may be said that the society plans to enlist the co-operation of the extension department and the home economics department of the university, and to inaugurate a campaign to popularize the production, consumption, and sale of honey on the farms of Missouri. A convention for next year is already projected in which it is hoped that an interest far greater in kind and in extent than anything in the past will be manifested and maintained.

Parkville, Mo.

A CABINET FOR HOFFMAN FRAMES

BY M. B. WHITE

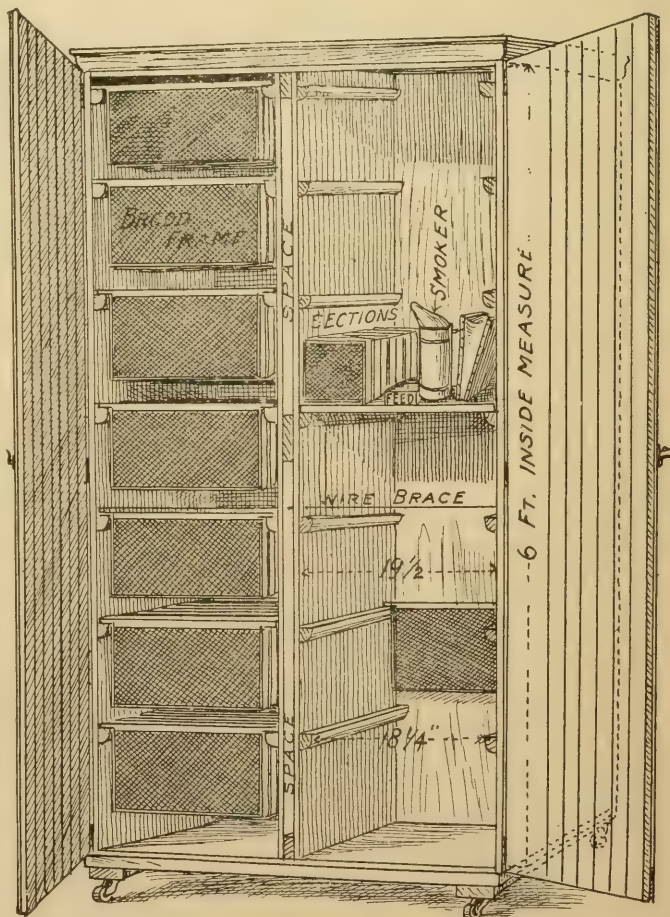
Several years ago I visited a friend who gave me my start in the honey industry. While at his home I noticed a chest in his honey-house similar to the one here illustrated. I immediately proceeded to make one like it, which has about one-fourth the capacity of the one I now present. It was not very long until it was too small, so I have just completed the new one.

Following are specifications:

18 pieces 1 in. by 4 in. by 8 ft., used for top, bottom, and back; 12 pieces 1 in. by 4 in. by 6 ft., two sides; 12 pieces, 1 in. by 1 in. by 6 ft., doors; 1 piece 1 in. by 4 in. by 14 ft., braces; 1 piece 1 in. by 4 in. by 8 ft., braces.

The work took me about a day and a half, working irregularly without anything to go by except a rough drawing I made and the actual frames. I had no tools but a saw, hammer, square, and plane.

Waco, Texas.



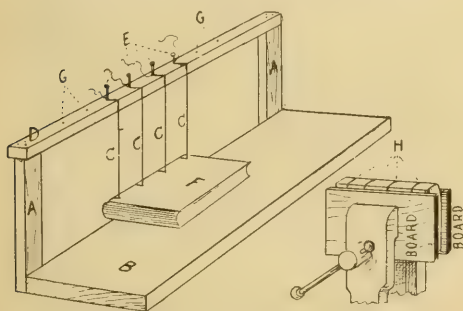
HOW TO BIND GLEANINGS

BY M. H. TEISBERG

GLEANINGS contains so many valuable suggestions that it is well worth while to save the back numbers for future reference. I think all will agree that the most satisfactory way to keep them is to have them bound in book form. My way of binding is so satisfactory, and so easily and cheaply done, that I should like to pass it on. Almost every beekeeper has all the necessary implements and materials except the stitching-frame, which I will describe.

An ordinary carpenter's bench-vise can be used as a press. Proceed as follows:

Arrange the twenty-four numbers that constitute one volume of GLEANINGS in order, and remove the advertising pages from all except the first and last numbers. Leave three or four advertising pages on each of the latter to serve as fly leaves. If all the advertising pages were left on, the completed book would be too bulky.



AA, uprights; B, baseboard; CCCC, cords; D, top-bar; EEEE, nails or tacks.

This done, true up the top and back edges of the volume and put it in your bench-vise between two smooth boards and screw up tight. The back side of the volume should be up, and should project about a quarter of an inch outside of the boards. Take a saw and make four cuts across the back of the volume so as to divide the back into five more or less equal parts. Guide-marks may be made first with a pencil if you like. Make the cuts one-sixteenth to one-eighth of an inch deep. Before sawing remove any of the wire stitches that are in the way by twisting them out with the point of a knife.

The next step is to sew your book together, and for this purpose you will need a stitching-frame. Almost any one can make a frame good enough in a few minutes like this:

Take a piece of plank or board six inches wide, or wider, and a foot or a foot and a half long, and to one side of it nail a frame six or eight inches high and as long as the plank. This frame is simply two uprights with a straight stick nailed across the top. Stretch stout cords between the top of the frame and the side of the plank, spacing them to correspond with the notches you sawed in the back of the volume.

You are now ready to stitch your book together. First tie your thread to the second cord from the top; then take the last number of the year and place your right hand between the middle leaves. Insert the needle in the second notch from the top, and draw the thread thru. Then put it thru the third notch on that side of the third cord which is furthest away from you. Reinsert it in the same notch, but on the side of the cord which is nearest to you. Put it out and in at the fourth notch in the same manner, then go back to the third, second, and first notches, and finally out where you started. If you have drawn the thread up snugly the cords will be drawn into the notches. Proceed in like manner with the remaining numbers, being careful to have them in proper order. Remove the book from the frame by cutting the cords, leaving the ends about one and a half inches long.

Now screw the book up tight in the bench-vise as before, and hammer the back down smooth. It should have a rounded shape. Paste a strip of muslin on the back, letting the sides overlap about an inch. This strip, together with the cords, forms the hinge on which the book opens. Let it dry in the vise all night.

The cover is made of pasteboard covered with any kind of cloth you please. A careful examination of any cloth-bound book will give a good idea of how it should be made. Paste it together. Fasten the cover to the book by pasting the outside fly leaves, the ends of the cords, and the overlapping edges of the back strip to it. Leave it in the press to dry or the covers will curl. Flour paste is good for this work. To spread it smoothly use a kitchen-knife.

Books bound in this way open flat without danger of breaking. They are much stronger than ordinary books, and I am sure that mine will last a lifetime.

As to the time it takes, the work is such a pleasure that one will be almost sorry

when it is finished. The stitching of a volume of GLEANINGS takes about an hour. Making the cover will take about another; so that, with making the sawcuts in the back, stringing the cords on the frame, pasting, etc., the time needed will probably not be far from three hours. Of course this does not include the time needed for the paste

to dry; but you can be doing other things in the mean time, so it is hardly fair to count that. If you are a stickler for smooth edges you can take the book to a printing-shop and have it trimmed. This, if done at all, should be done just after taking from the stitching-frame.

Ashby, Minn.

DIFFERENCE BETWEEN PIPING AND QUAHKING

BY J. D. ELLIS

I have been greatly interested in the discussion between you and Dr. Miller in regard to "quahking of queens." A few years ago I was walking home from the postoffice with a queen in my pocket. Suddenly near a swampy wood I heard what I supposed was a duck quacking. It began in loud slow tone, and ended in quick low tone. I and my companion with me said, "Wild ducks," and hunted for them. None were found, and we proceeded. Further on we heard the same sound again, and at once we said "wild ducks." But this was in high open field, and we were puzzled. Neither of us had ever heard that the queen or any bee ever made a sound. After close listening we discovered that the sound came from my pocket. We took out the cage, listened, and were astounded. We told it around the country, but none would believe us. You may call it "piping" if you wish, but we certainly thought it was ducks. In boyhood days I have often seen a partridge "drumming." Standing on a log it flaps its wings without moving, first slow and loud, but getting more rapid and faint. I have wondered if the queen does that.

Montreal, Quebec.

[The following letter from the editor to Dr. Miller will explain:]

Dr. C. C. Miller:—I enclose a letter from Rev. J. D. Ellis, Montreal, Quebec, in regard to the quahking of queens. This is the first instance I have heard of where the quahking was made outside of the queen-cell. He describes it so minutely and so accurately that I am inclined to think the queen made this sound inside the cage. Did you ever hear or know anything of this kind? I have always been under the impression that the piping that you refer to was a very different sound from the quahking. The quahking is more like the quacking of ducks and the piping like zeep-zeep-zeep—that is to say, sounds like a very minute, infinitesimal (if I may so express it) squeal. The piping that I have referred to, as queens answering each other back and forth in our office from separate queen-cages, was the sound of the infinitesimal trumpet—a very minute sound like some of the upper notes of a violin. The quahking, as I understand it, would sound like the coarser notes, the coarsest that the ordinary

small violin can give; in fact, I believe that a good violinist could produce either sound that the queen gives. I think there may be some misunderstanding between some of our subscribers and yourself and myself as to the actual difference between quahking and piping. If you have any circumlocution of language that will describe either I hope you will do so for the benefit of Mr. Ellis or any one else.

E. R. Root.

[To this Dr. Miller replies:]

Note that Mr. J. D. Ellis says he had never heard that the queen makes *any* sound; so as this was the first time he ever heard a sound from a queen he would not discriminate closely between piping and quahking. He calls the noise "quacking," but he *describes* piping, for he says it began in a slow tone and ended in a quick tone. The beginning of quahking has always seemed to me as if the queen were hurried, although I think the tones are of equal length. Certainly I don't believe any one would think that quahking begins in a slow tone, while piping does.

I feel quite confident it was piping Mr. Ellis heard, and that there is yet no proof that a queen ever quahks outside a cell, although the difference is not all—I think not mainly—made by being in or out of a cell.

If you will wait till next summer, and then listen patiently some evening to quahking and piping, I think you will say that quahking is distinctly different from piping, and that the difference is one that cannot be made by confinement in a cell.

After reading again your letter I will say that you are right about the difference in the two sounds, except when you speak of piping as being a "minute sound." That would convey the impression that it is a very faint sound. It is sharp, shrill, piercing, but not at all minute, for I've heard it distinctly several feet away from the hive. I think you are right that a violin could well imitate both sounds. When a queen begins quahking in reply to the piping of another queen, the quahking, as I remember it, *seems* louder than the piping, but I doubt if it really is, for, as already said, I've heard piping at quite a distance from the hive, and I don't remember to have heard at the same distance the quahking reply. Your word "squeal" is not a bad one to describe piping.

C. C. MILLER.

[Has any one of our readers ever heard a queen "quahk" outside of a queen-cell? Piping never is the same as the sound of wild ducks in the distance. We still incline to the opinion that Mr. Ellis actually heard "quahking."—Ed.]

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHY

The fellow who says he don't pay much attention to his bees, but figures to keep a hive or two for a little table honey, seldom gets more than he figures on.

Report of Michigan's Fiftieth Meeting

With an attendance of almost two hundred, the Michigan Beekeepers' Association held its fiftieth annual convention at Grand Rapids, December 15, 16. It does not fall to the lot of every beekeepers' association to enjoy a fiftieth anniversary, and the consensus of opinion of those present was that Michigan held a worthy celebration, and one that has left pleasant memories.

The meeting was marked by several interesting and novel features. One of these was the banquet supper, so kindly provided by the G. B. Lewis Co., Watertown, Wis., and by the A. G. Woodman Co., Grand Rapids, Mich. Another feature was the giving of medals.

In place of the usual half-dozen entries there were over forty different exhibits; and in the comb-honey and light-extracted-honey classes competition was very keen. The medals are cell-shaped, one inch and a half in diameter, and bear on one side the portrait of L. L. Langstroth, suggested by Dr. Phillips.

The medals were provided as follows: The manufacturers of bee-supplies, The G. B. Lewis Co., The A. I. Root Co., C. P. Dadant & Sons, R. & E. C. Porter, The Marshfield Mfg. Co., The Kretchmer Mfg. Co., and the Gus Dittmer Co., gave the gold medal. This medal is ten-karat solid gold, and known as the manufacturer's medal, value \$50.00.

The Michigan jobbers in bee supplies: The A. G. Woodman Co., M. H. Hunt & Son, E. D. Soper, and The Beekeepers' Review per E. D. Townsend, provided the silver medal. This medal is known as the jobber's medal, value \$20.00.

The bronze medal is provided by the association, and is known as the association medal.

The medals were much appreciated, and declared appropriate and beautiful in design, and created much interest during the meeting. Many of the beemen present decided that the winners would have to put up the finest of exhibits next year or the medals would change hands.

While there were over forty entries at this convention we are preparing for many more exhibits at the next meeting, in Lansing. The object in providing the medals will, no doubt, be attained. That is an exhibit worthy the name and the State of Michigan, and one that the public will come to see.

For our fifty-first meeting we hope to combine more features that will make this side of the convention a big drawing card to the general public.

Among our many visitors were some prominent beemen from other parts, including: Dr. E. F. Phillips, Prof. Jager, John C. Bull, George Williams, R. F. Holtermann, J. Danzenbaker, Dr. Kohn, and others.

The interest in the meetings was well sustained thruout, and the attendance at the closing session was equal to that of the earlier sessions.

President Running in his address alluded to the value of the summer apiary demonstrations, and touched upon the possibility of some of the Smith Lever funds being used for apiary demonstration work.

The program was full of valuable and instructive papers, which contained some excellent suggestions and ideas as follows:

E. D. Townsend, "Running Outyards for Extracted Honey."

Morley Pettit, "Notes from the Year's Work."

C. P. Dadant, "Size of the Brood-chamber."

Prof. J. H. Haughey, "Phases of Queen-breeding."

Prof. Jager, "Beekeeping in Minnesota."

A. H. Guernsey, "Transferring Bees."

R. F. Holtermann, "Question-box."

Dr. E. F. Phillips, "Some Lessons of the Last Half-century."

O. H. L. Wernicke, "Beekeeping as a Prison Industry, and its Reformatory Influence."

Ira D. Bartlett, "Business Principles and System a Big Asset in the Success of the Apiarist."

Dr. E. F. Phillips, "Outdoor Wintering."

Morley Pettit, "The Bee Business in Canada as seen by a trip through Different Provinces."

The winners of the challenge medals were: Mr. and Mrs. Floyd Markham, Ypsilanti, manufacturers' gold medal; E. E. Coveyou, Petoskey, jobbers' silver medal; David Running, Filion, association bronze medal. Medals have to be won three times before they become the property of the exhibitor.

Lansing was chosen as the place for the next meeting. The A. I. Root Co. and M. H. Hunt & Son announced that they would be hosts to the beekeepers at that time, when they would serve a banquet supper. Those present at the banquet at Grand Rapids will remember what a pleasant time was spent, and visions of another good time at the Lansing meeting are already rising and will no doubt materialize at that time.

F. Eric Millen, Sec.

East Lansing, Mich.

Eastern Massachusetts Meeting

The January meeting of the Eastern Massachusetts Society of Beekeepers was held in Boston on January 8. There were 36 members present, and four visitors from Rhode Island.

Mr. Allen Latham, of Norwichtown, Ct., was the first speaker on the list. His subject was "Building up Nuclei into Full Colonies." Mr. Frank C. Pellett, of Atlantic, Iowa, was given a royal reception when he was announced as the second speaker, and talked to the society on Latham's subject, after which questions were put to both these men, and a very profitable discussion ensued.

Boston.

Benjamin P. Sands.

Death of Delos Wood

The attached clipping was taken from the Los Angeles "Times" of January 7: . . .

BEE EXPERT DIES.

SANTA BARBARA, Jan. 6.—Delos Wood, pioneer apiarist of this county and Ventura, died here today of heart failure superinduced by a severe cold. Wood is acknowledged as a bee expert of the state. For thirty-two years he had been in the business.

Mr. Delos Wood was highly respected by the best of the bee fraternity thruout California; has been very active as a member of the different beekeepers' organizations; was a writer of no mean talent on bee topics; one of the main stays of the California State Beekeepers' Association, and a regular correspondent of the "Western Honey Bee." He was an honorary member of the State Association, and president of the Ventura County Beekeepers' Club.

All beekeepers knowing Mr. Wood will feel the loss of this grand old man who retained his good nature and bright laughing ways almost to the last day of his life.

Los Angeles, Cal.

Geo. L. Emerson.

Michigan Beekeeper Passes

Mr. William E. Forbes, of Plainwell, Mich., died January 2, 1916, at the age of 75. At one time Mr. Forbes had as many as 200 colonies, and was one of the most careful and methodical beekeepers in his state. He has kept bees for over forty years, and was an expert in bee management. He disposed of most of his bees last year to a fellow beekeeper. Mr. Forbes was one of the oldest members of the State Association, and attended a great many of its meetings. The beekeeping fraternity has lost a good craftsman and a true friend.

A Beekeeper.

In a Cold Country

This district is well on toward Hudson's Bay, and is pretty cold now and then. To-day, Jan. 5, it is about 30 below zero—the coldest day this winter so far.

I find Italian bees do well here in a normal season. We have a good deal of small timber in this part of the country, and the bluffs in which this timber is contained have an abundance of wild flowers, together with wild strawberries and raspberries. Last summer a three-frame nucleus built up to ten frames full, and yielded me 60 full sections besides. Moreover, I had to rob the brood-chamber of some honey during early August, in order to give them room. Altogether I got about 80 lbs. from this colony.

In 1904-'5 I bought three nuclei for New Liskeard, in Temiskaming. These nuclei filled seven hives that season, and gave me about 100 lbs. of comb honey besides. The climate and conditions there are about the same as here, so you see it is hard to place a limit to the producing area of our friend the bee.

Melfort, Sask., Jan. 5.

Geo. Weaver.

The Loss by Weight when Feeding

I do not think that Mrs. Allen will find out just what she wants to by your own and Dr. Miller's answer in the January 1st number. If a colony is short 10 lbs. of honey she wishes to know how much she will have to feed to make up 10 lbs. of sealed stores. Dr. Miller's answer of 5/7 of a pound of sugar for every pound of stores short would mean 10 lbs. of syrup in the feeder.

This thing was discussed in Gleanings some time ago, and the most of the beekeepers agreed that there is a loss between feeder and sealed stores—that to make a pound of sealed stores a pound of sugar should be fed, no matter how much water is added.

Grosvenordale, Ct.

Ernest Ryant.

A. I. Root

OUR HOMES

Editor

Thou shalt not kill.—EXODUS 20:13.

Thou shalt not commit adultery.—EXODUS 20:14.

There is none other name under heaven, given among men, whereby we must be saved.—ACTS 4:12.

A few years ago a book came out entitled, I think, "The Traffic in Girls," and it made quite a sensation, especially among certain lines of people. Later on came another book, perhaps from the same author, entitled, "The Traffic in Little Girls." Since then our nation has been stirred up by the war against the "white-slave" traffic, and some of us began to think it was pretty well done away with; but every little while our daily papers in the great cities have given occasional glimpses to the effect that things are not *always* as they look on the outside.

Dear friends, it is my sad duty to show you in this Home paper that something worse than the traffic in *little girls* is still going on in some of our great cities—something *worse*, if possible, than the great war across the seas, and, I might almost say, worse than the liquor business, were it not that it is a part and an outcome of this same hellish combination. I mean that there is a traffic going on in poor innocent and helpless motherless and fatherless *babies*—babes from a day old to a week old, and that these poor helpless and homeless infants are being *murdered*, not only by the hundreds but by the *thousands*. How devoutly I wish some one could tell me it is not true, and that I have been misinformed! It is a rather long story that leads up to it, but is something the whole wide world should know about. The gradual steps that have led up to it should be a warning to those who are about to take the first steps that look so harmless, *out of the "straight and narrow path."*

Some good friend mailed me a supplement to the Baltimore *Star*, dated Dec. 20. The large heading reads:

Startling Facts in Report of Governor's Vice Commission; Social Fabric of Baltimore City Seriously Undermined; Leaders of Professional, Church, and Social Circles Involved in Exposure; Traffic in Girls and Babies is Astounding; Open Vice Conditions Pale before Orgies of the So-called Best People.

A group of leading physicians, social workers, and business men of Maryland, named about three years ago by Gov. Phillips Lee Goldsborough to study and report on vice conditions in Baltimore city and the state at large, have just affixed their signatures and forwarded to the Chief Executive of Maryland one of the most remarkable documents ever compiled in the history of the country.

Below I have clipped brief extracts, taken here and there, which might indicate

that it would be nothing strange if the Almighty should (if there is no let up) send down fire and brimstone on Baltimore as he did on Sodom and Gomorrah.

The tremendous social sore is of such great scope that members of the commission consider publication of the general conditions of the same importance to the community as would be the vital necessity of the surgeon's knife to the individual in an extreme appendicitis case.

VAST PUBLIC MENACE.

Starting out from the report with a horrible leer into the face of the community are the facts that a heavy percentage of the local population is suffering in some form from the most horrible and loathsome disease known to the medical world, and that most inadequate facilities are provided by the hospitals for the treatment of this public menace.

Men and women of all races and colors are in the grip of this monster, and even children are by no means free from its grasp.

Thru the efforts of Dr. Walker, these horrible facts so aroused the sympathies of John D. Rockefeller, Jr., that the latter has contributed \$6500 for each of the next three years to maintain a clinic at the John Hopkins Hospital to handle this disease.

A separate examination of the professionally fast women showed that 96.61 per cent indicated the presence of this terrible disease or one only slightly less loathsome.

"We found that," continues the report, "according to our rough estimate, 24 per cent of the girls in these houses are feeble-minded; that is, have not intelligence enough really to realize what they are doing. It is nothing short of monstrous for such persons to be found in such a life; they are absolutely nonresistant, and are an easy prey to conscienceless madams and victims of the degraded appetites which many men possess.

"There are inadequate facilities for the detention and segregation of feeble-minded boys and girls above 16 years of age. The practical significance of their being at large is that when free they are allowed to propagate their kind. We have numerous examples of feeble-minded girls who have had two or three children, and some who have had four or five. Their offspring are nearly always of the same type. It is of economical value to the state to put a stop to such propagation, to say nothing of the humane aspect of the case."

"It is this woman's business to acquire and to exhibit the youngest and most innocent girls that can be procured," says the report. "The greater their delicacy or charm or beauty the greater profit she can count upon their yielding her. Once they are captured and under her sinister subjection, she sees that they are on hand and accessible whether they are sick or well, in season and out of season.

The above is only part of the preliminary to the "Traffic in Babies." Omitting several columns of details, we come to the following:

"There are two well-known institutions in Baltimore which will receive infants immediately after their birth and keep them permanently. The parents, by paying to either of these institutions from \$100 to \$125, are relieved of all responsibility, and relinquish all right and claim to the child. The

mortality in these institutions varies from 75 to 95 per cent. The mortality of infants nursed by their mothers is less than 10 per cent.

CALL IT MURDER.

"We do not attempt in this study to settle the many complex problems relating to the illegitimate; but we believe that the facts show that society's method in many instances is one of repression and virtual murder. This is a harsh word, we grant, and would fain substitute a gentler term; but after all is said and done, that which we have reported is virtual murder, and slow and cowardly at that. It would be far more humane to kill these babies by striking them on the heads with a hammer than to place them in institutions where four-fifths of them succumb within a few weeks of malnutrition and infectious diseases. It is a few weeks of suffering, a few weeks of going down to death by a process that is slower than the hammer, but in most instances just as sure. Hedged in by our system of shams and our fabric of lies, we refuse to call it killing them; we dignify it by the softer name, the smoother term, of putting them into institutions where they will be cared for. But nearly all of them die, and many of us know that they die, and, moreover, may think that it is better that they *should* die.

"All of this is done in the effort to preserve a family's good name; to prevent a girl's reputation from being smirched, to save the man in the case from facing the consequences of his act. All together, it is a well-organized hushing-up by a system of subterfuges and repression in order that the certain individuals shall not have to face openly what they have done."

And now comes the sad final summing-up:

"A calculation was made concerning the infants under one month of age that had been placed in the institution by the city for 1900 to 1914 and had not been removed, except by death, under a period of six months; among all these children there was not a single survivor—a mortality of 100 per cent."

Under another section, devoted to general conditions, the report states:

"The dead infants are buried in a large hole, which serves to accommodate from 75 to 100. From time to time, as they die, their bodies are placed in the hole and covered with a few shovelfuls of earth. When the hole is filled with bodies another hole is dug alongside of it, and the bodies of infants that have been buried for several years are taken out and their bones thrown away to make room for new burials. In a small plot of ground it is estimated that about 5000 infants have been buried.

I read the above to Mrs. Root just before retiring; and in thinking it over I decided that all the police in the world, and all the legislation, and, in fact, nothing would avail Baltimore but a visitation of the Holy Spirit; and then our last text came to mind—"None other name under heaven." When the wicked men and women who are responsible for the untimely death of these innocent babies shall be *converted* and go down on their knees before an angry God, then will help come to Baltimore and other cities like her. Finally I knelt down and prayed the good Lord to move Billy Sunday to go to Baltimore. At that time I had no knowledge he had any such plan in mind; but next mail brought the welcome

news that the great city was already "up in arms," preparing the way for his coming. Below is the heading of an editorial from the *Baltimore Sun*:

15,000 kneel in prayer; 1250 meetings held to pave way for Billy Sunday; all classes represented; devotions last for half an hour, and blessing is asked on evangelist and work.

Some of you may say, "Why, brother Root, *your* prayer was not answered in the above, for the matter was planned long before you prayed." To which I answer, from Isaiah 65:24, "Before they call I will answer; and while they are yet speaking, I will hear."

Let us look at the matter a little. Men and women break God's holy command against adultery; and to conceal the crime they commit murder or pay money to some one *else* to do the murdering. It is not grown-up men who can protect themselves, but helpless *babies—their own offspring*, because they are respectable people (or claim to be), and dare not own their own children. We read about and sing about "the heathen in their blindness bow down to wood and stone;" but are there any *worse* heathen in the whole wide world than in "Glorious America," "the land of the free and the home of the brave"? May God give Billy Sunday grace to realize the size of the task he has undertaken.

"CHIGGERS" AND REDBUGS.

As to "chiggers," I am sometimes attacked by them, but not often, and never, I think, when in my work clothes. This I ascribe to the fact that, when dressed for work, I always use the spring-steel trousers-guards commonly worn by bicyclists. The guards are well worth wearing, too, to keep out dust, tickle-grass, weed stubble, and other rubbish when one is working in the farm or garden, tramping the roads, or exploring the woods and fields.

Carthage, Mo.

BENJAMIN C. AUTEN.

I think very likely the trousers-guards, or, in the absence of them, tying a string around the ankles, would largely keep off these troublesome insects. I would suggest, however, that at the same time you put kerosene around the tops of your shoes, as I have frequently had the redbugs get around on to my feet below the ankles. Perhaps I have failed to mention that there is seldom any trouble from these insects if you keep away from the wild grass and other vegetation in the woods. Where the land is under cultivation there is seldom any trouble of this kind. Keeping down grass and weeds around the home will very much aid in keeping the premises clear of such pests.

HIGH-PRESSURE GARDENING

SOME GLIMPSES OF OUR
FLORIDA HOME AND
GARDEN.

When we came here the first week in November I made haste to plant some potatoes. The only good sprouted seed to be found on the market was \$2.25 per bushel. Cut No. 1 shows them 40 days after planting. It is now (Dec. 31) about 50 days, and some of the hills are 2 feet high, covering the ground. There are a few potatoes already nearly the size of small hens' eggs—no bugs, no blight, not even a flea-beetle, to make the leaves full of small holes; in fact, I do not think I ever saw *perfect* potato foliage until I came to Florida. In the background you see one of the mulberry trees I have so often spoken of; also a banana, slightly touched by the frost—the one or two that we have had, but none so far to hurt anything except sweet potatoes.*

* At the left of the house in the background is the great rubber tree. Three years ago last June it was just coming out of the ground; now it is 20 feet high and 50 feet wide in its spread of branches. Mrs. Root says I shall have to move the house or the tree.



FIG. 1.—Red Bliss Triumph potatoes planted Nov. 11.
Photographed 40 days later.

Cut No. 2 shows another bed of potatoes about 30 days after planting. Thru the center of the bed is a row of loquat plums, set out only a year ago, but all containing more or less bloom. On the left is a clump of the roselle bushes I have written about. The foliage has dropped off, but the "fruit" is still good. We are having it every day with cut-up oranges. Just behind them is an orange-tree full of fruit.

Cut No. 4 is my favorite Royal grapefruit, still bending with its load of fruit in spite of the fact that one or more are taken every day for my "fruit supper" with a couple of apples brought from Ohio.



FIG. 2.—Bliss Triumph potatoes 30 days after planting.



FIG. 3.—Buckwheat sowed in November. Photographed after only 30 days.

Cut No. 3 is explained by the two letters below. I found the bees on the blossoms the first time on Christmas.

Mr. A. I. Root:—I am a beekeeper in a small way. I have 40 stands for comb honey. I take GLEANINGS, and like it much. I read very carefully your experiments in Florida. I am trying to propagate buckwheat that will stand sun and wind, and not blast. I have seed from the third selection, and think it quite an improvement. I should like to send you some seed for you to plant in Florida; and if it produces a good crop, I should want you to send the seed to me for next year's planting, and would send you some more seed ground here. In that way I could get two selections in *one year*.
Nelson, Pa.

FRED H. SELPH.

Later.—I sent you the buckwheat yesterday by mail. I would drill it about three inches apart, and use some fertilizer. I find that 3-8-10 fertilizer is about the thing for buckwheat. The buckwheat I sent is all from one stalk, 1113 kernels.

FRED H. SELPH.

SWEET CLOVER IN CALIFORNIA; SOMETHING ABOUT THE WAY IN WHICH IT IS BRINGING UP BARREN SOIL.

I am sending you herewith an article clipped from the Redlands *Daily Facts* under date of Sept. 28, that seems to me to contain so many valuable things about sweet clover that it should have as wide a circulation as possible. There seems to be no limit to the possibilities of this plant in building up and rejuvenating old soil. Indeed, it is surely becoming known as a factor in the welfare of future generations.

Redlands, Cal., Oct. 20.

P. C. CHADWICK.

A DESPISED WEED PROVES PRECIOUS BOON TO FARMERS.

The story of how this unappreciated native "weed" has been found to increase the yield of subsequent crops, following its incorporation into the soil, to a greater extent than any other legume ever tested in California, is told by W. M. Mertz, superintendent of cultivations of the Citrus Experiment Station of the University of California at Riverside, in a circular on "*Mellilotus Indica* as a Green-manure Crop in Southern California," just published by the University of California, and obtainable free by writing to the College of Agriculture at the University.

Here is related the story of how for many years past the University of California has been testing a wide variety of "cover crops" at Riverside and elsewhere. Various clovers, vetches, and other leg-

umes, as well as rye, barley, etc., have been grown as a winter cover crop, and then plowed under in the spring, in order, by green manuring, to introduce nitrogen into the soil, aid the activity of useful soil bacteria, and improve the texture, humus content, and general condition of the soil. Then potatoes, corn, sugar-beets, and other crops have been grown on the test plots to find out how much the fertility of the soil has been improved by this treatment.

The resulting increase in fertility has been most gratifying. Land on which common vetch had been

plowed under gave an increased yield of 18.7 per cent; burr clover, 30.4 per cent; and Canadian peas, 43.4 per cent.

But when sweet clover was grown and plowed under, the yield of the test crops following showed an actual average increase of 64.8 per cent.

This is nearly half as great again an increase of yield as it has been possible to obtain by plowing under cover crops of rye or barley, and applying also 1902 pounds of nitrate of soda or 1188 pounds of dried blood per acre.

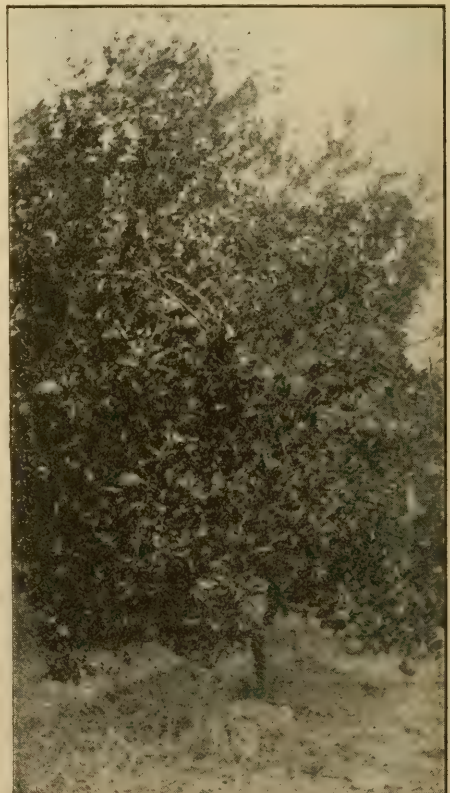


FIG. 4.—Our Royal grapefruit tree close to the dining-room door. "Short-cut from producer to consumer."

Another remarkable merit of this new cover crop, sweet clover, is that it is extremely effective in preventing "plow-sole," or irrigation hardpan, an ailment to which a large proportion of irrigated orchard soils in California are liable. Frequent cultivations of dry pulverized soils, together with frequent irrigation, tend to wash down the fine clay particles and deposit them in a dense, hard layer of varying thickness just under the cultivated area, and thus soils become impervious to water. Sweet clover, however, though an annual plant, in six months sends its roots deep down, often as much as eight feet. This great root system is extremely useful to the orchardist, keeping the deep layers of the soil in good physical condition and opened up for irrigation.

The increased production of a crop up to 64 per cent is certainly wonderful if there is not some mistake in the figures. It illustrates again how much there is to be discovered all round about us if we go to work with faith and enthusiasm to develop God's gifts.

SWEET CLOVER.

From Cowley County, Kansas, comes an authentic report of a man who pastured 35 head of cattle weighing 500 pounds apiece; 6 sows and 33 suckling pigs on nine acres of sweet clover from April 10 to May 6. The sweet clover had been seeded in the spring of 1914, and was, therefore, but one year old. On May 26, after the stock had been removed for twenty days, the sweet clover was growing rapidly, and had reached the height of eight inches. From Harvey County, Kansas, comes an equally authentic report of a man who, up until May 22, had been pasturing his milk cows on sweet clover that was but one year old. So well had these cows been doing on the sweet clover that the owner was delighted with the results and the quantity of

milk received, and quite likely those cows are still in that same field. On that particular farm there was plenty of alfalfa; but owing to losses caused from bloating, the owner was afraid to risk valuable cows in an alfalfa field.

We should like very much to hear from others who have made this same observation, and should like to have any other interesting facts for or against sweet clover which will be of value to the man who is thinking about seeding this crop.

It seems absolutely certain that sweet clover will find a place on many grain-belt farms, which cannot be filled by either red clover or alfalfa. It is, therefore, important that we get as many facts from one another as possible.—*Farmer and Stockman*.

SWEET CLOVER—35 ACRES.

I am very much interested in the new sweet clover. Will you kindly send me a few seeds when the crop is harvested? The farmers are just beginning to see the value of this wonderful plant in this part of the state, and one friend of mine has put in thirty-five acres this year after trying three acres last year with which he was so well pleased that he planted the larger field.

Princeton, Ill., July 21. G. S. RICHARDSON.

THE AVOCADO PEAR IN JAMAICA.

I am sending you under separate cover a seed of the avocado pear. You mentioned the alligator pear in GLEANINGS in the early part of the year. I thought you would like a seed. This seed is not of the alligator kind, but they grow here. The avocado pear grows here without cultivation of any kind. When there is a good crop a lot of the fruit is fed to pigs when ripe. At present we can get two fair-sized ones for one cent and a half. The alligator pear is called so because of its shape.

HERBERT HOLLI.

Brown's Town, Jamaica.

TEMPERANCE

GOD'S KINGDOM COMING.

I have been for some time past making clippings from our exchange periodicals in regard to the "temperance wave," and now there are so many that I thought at the time *must* have a place that they would pretty nearly fill a single issue, and even if we did so, there would be two troubles: First, before they would get to Medina and get in print they would be out of date. Secondly, many of you would find you had read the same thing, or a later version of it, already.

On the last day of 1915 we found in our Bradentown daily the following:

DRY TERRITORY TAKES IN SEVEN MORE STATES;
OVER 3000 SALOONS AND MANY BREWERIES,
DISTILLERIES, AND WHOLESALE HOUSES
WILL CLOSE.

WASHINGTON, Dec. 31.—Seven states become dry at midnight tonight. Over three thousand saloons and a large number of breweries, distilleries, and wholesale liquor-houses will be closed.

The states are South Carolina, Iowa, Colorado, Oregon, Washington, Idaho, and Arkansas.

The Idaho laws are said to be the most drastic in the country. It makes the possession of any kind of liquor a crime.

From the *Plain Dealer* of Jan. 1 I clip as below:

SEWER GOES ON DRUNK.

CHARLESTON, W. Va., Dec. 31.—Twenty-five thousand pints of whisky, brandy, and rum confiscated by the State Prohibition Department, were emptied into a sewer here yesterday. The process required three hours' work by four men who worked in relays to prevent being overcome by the fumes.

And now comes one of my "happy surprises."

The *Cleveland Plain Dealer* has heretofore favored license rather than prohibition; and it has also carried "booze" advertisements, at least to some extent. In the daily for Jan. 4 I could hardly believe my eyes when I read the following:

HOME MAP-MAKING.

While belligerency is making over the map of Europe, prohibition is making over that of the United States. The first day of the new year deserves a high place in the annals of the dries.

Seven states were added to prohibition territory with the dawning of Saturday, bringing the total number to nineteen wherein the manufacture and sale of intoxicants has been outlawed. From one

ocean to the other and from the Gulf to Maine the dry territory stretches, with only a break here and there, where a wet or local-option state intervenes.

The closing of so much territory to the liquor business on New Year's day marked the culmination of an exceptionally successful year for the drys. In state after state they carried their fight on the saloon, meeting their opponents in legislatures or before the people, and usually worsting them. In Ohio they met defeat when the dry amendment to the constitution was rejected in November, but that was one of the few reverses they met during the year.

And the fight of the drys will continue unabated during 1916.

Six states are to vote on complete prohibition before the year ends; and a seventh, Florida, may put the issue to the test. In addition to these contests for statewide prohibition the drys will continue to press their enemies' strongholds upon the issue of local option. Four states remain which have so far refused to enact laws establishing local option. In Pennsylvania, the greatest of the four, not even the campaign pledge of a popular governor and the governor's later strenuous efforts to make the pledge good, were sufficient to secure the enactment of such a law.

It is not impossible that, by the end of the new year, half the states of the Union will have completely outlawed the traffic in intoxicants. Even the possibility is significant of the trend of popular thought on the problem of the saloon.

After reading the above, it occurred to me I had not, for some time, noticed any "booze" advertisements in the *Plain Dealer*, and I have just searched over several issues, and *don't find one*. For years past I have been pained because not one of our Cleveland dailies seemed to have the courage to follow other great cities and announce "No more whisky advertisements." May God be praised if it is really true that our leading daily has decided to take the lead.

WHAT "BOOZE" MAY DO

The superintendent of our Sunday-school recently told us about a young man of his acquaintance who gave great promise, not only of being a great scholar but of being one who would likely be a blessing to his age and nation. A member of our Bible class told us further that he became an expert civil engineer, and was employed by the government to survey for miles along the Atlantic coast, and, if I am correct, he did a large and important work along the coast of Florida. Well, this man, highly connected, of such education and ability, got to drinking, lost his position, and, in spite of all his great circle of friends and relatives could do, went down and down.

Recently here in Bradentown, out on the dock, we had a bad fire. A hotel built near the boat-landing, on piles driven into the water, was burned. You might think that, with water below and on every side, it would be an easy matter for the fire company. Not so. It was only by wading in

the water that the firemen could work. Now read the clipping below from our Bradentown daily about this same expert civil engineer.

The body was burned beyond the possibility of certain recognition aside from peculiarities of the teeth, which were recognized.

J. P. Petroutsas, proprietor of the hotel, stated today that Gray was a roomer at the hotel, that he occupied the room with an employe, who awakened him just before the employe took the plunge to safety in the waters of Manatee River.

It was reported his helper not only "awakened him," but that he got him out of bed, and he must have gone back again into the burning building. This is nothing so very strange. Do you recall what I said about the boy who persisted on lying across the track before the coming train? I will tell you something more about that. In taking him toward home we came to a cattle-guard. I cautioned him, and tried to help him get across safely. He struck me a brutal blow, then tried to run across, slipped down between the sharp-edged timbers, and when I got him out the blood was trickling down into both his shoes.*

Away back in that good old book we are told "It biteth like a serpent and stingeth like an adder," and, again, "Yea, thou shalt be as he that lieth down in the midst of the sea, or as he that lieth on the top of a mast."

MICHIGAN PAPER TELLS WHAT RESULTS FROM GETTING RID OF SALOONS.

BENTON HARBOR, Mich., Dec. 1.—An editorial recently appearing in the *News-Palladium*, of this city, presents at once an emphatic statement of the results of getting rid of the local saloon, and an honest man's argument for the extension of those benefits to the whole state. The paper says:

"Our experience here in Berrien County should convince every thoughtful and intelligent person that the abolishment of the sale of liquor by law is the best possible thing that can happen. Right here in Benton Harbor we have noted the effect in the way of a more orderly city, more happy homes, brighter-faced children, and many more cheerful women; and not only this, but there are scores who, previous to this important change, were scantily clad and poorly fed, who now enjoy the necessities and many of the luxuries of life.

"If a single drunkard were saved, and one family made happy, then the great reform would be worth all that it has cost us. But when there are scores of them, and when our streets are practically cleared of drunkards, the number of prisoners in our county jail reduced, and the expense of carrying on criminal litigation in this county cut down to a minimum, it would seem that all fair-minded people would be convinced of the desirability of the blessed state of affairs that we now enjoy; and it would also seem that all unselfish people residing within the borders of this county would be willing to work with zeal and energy to bring about statewide prohibition in order that every one within the borders of Michigan may be as blessed as we are ourselves."

* After this, when I supposed he had gone home, I found him *once more*, lying across the railroad track.



Engine Power costs less - NOW

By using 1916 Model WITTE ENGINES

Gasoline, Kerosene

Gas, Distillate.

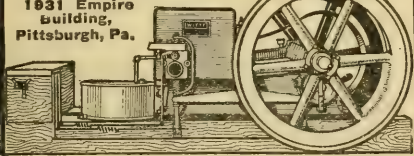
Buy Direct; Cash or Easy Terms

Stationary engines, 2, 3, 4, 6, 8, 12, 16 and 22 H.P., less than \$17.50 per horse-power. 6 H.P., only \$37.75, F. O. B. Factory. Portable engines and Saw-Rig outfits proportionally low. Proven highest quality for 23 years. Before you arrange to try any engine, at any price, read my free book, "How to Judge Engines." This book shows you how to save and make money with an engine, whether you buy of me or not. Write me today—my nearest office.

Ed. H. Witte, 1931 Oakland Ave.

Kansas City, Missouri.

1931 Empire Building, Pittsburgh, Pa.



KITSELMAN FENCE



HORSE-HIGH, BULL-STRONG, PIG-TIGHT

Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices.

Here's a few of our big values:

26-inch Hog Fence - 12 cts. a rod.

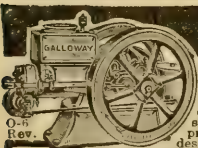
47-inch Farm Fence - 18 cts. a rod.

48-inch Poultry Fence - 24 cts. a rod.

Special Prices on Galv. Barbed Wire.

Our big Catalog of fence values shows 100 styles and heights of Farm, Poultry and Lawn Fence at money-saving prices. Write for it to-day. It's free.

KITSELMAN BROS. Box 21 Muncie, Ind.



RELIABLE POWER

Nearly 100,000 Galloway engines in daily use. Long stroke, large bore, heavy weight. Built for hard continuous engine-users' satisfaction. All sizes, prices, styles. Modern design, few parts, best material, skilled labor. Positively not over-rated. Sold direct. Engine book free. Investigate and compare before you buy.

WM. GALLOWAY CO., Box 765 WATERLOO, IOWA

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1916 Model Rider Agents Wanted

in each town to ride and show a new 1916 model

"RANGER" bicycle. Write for our liberal terms.

DELIVERED FREE on approval and 30 days' trial.

Send for big free catalog and particulars of most

marvelous offer ever made on a bicycle. You will be

astonished at our low prices and remarkable terms.

FACTORY CLEARING SALE—a limited number of

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second-hand wheels \$3 to \$8. Write if you want a bargain.

Tires, lamps, wheels, sundries and repair parts for all makes

of bicycles, at half usual prices. Write us before buying.

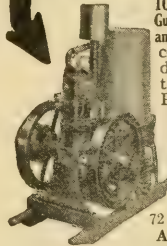
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ONLY 3 MOVING PARTS SANDOW ENGINES

Over 20,000 in use for general farm work, irrigation, operating binders, railroad track cars, portable outfit, etc. Particularly adapted for electric lighting, which requires absolutely uniform power.

30 DAYS Free Trial



10 Year Guarantee

Run on kerosene, distillate, gasoline, etc. No cranking.

Run in either direction. Reversible while running. Water cooled. Light in weight. Simple design eliminates engine trouble. Child can operate. Price low. Handsome new engine book tells you why you should have a Sandow

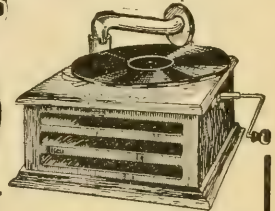
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Detroit, Mich.

72 Canton Avenue

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We send it on FREE TRIAL with Records. If you buy, pay \$1.00 a week and own a Phonograph for LESS THAN HALF price of equally good machines. Thousands used. STRANSKY MFG. CO. 41 E. Warren St. N. Y.

25 TIMES World's Champion Belle City



Incubator 402,000 in use. Get the whole story told by the Championship Winners in my big free book, "Hatching Facts." With book comes full description of incubator and brooder—my 10-year money-back guaranty—low prices—full particulars—and my \$1300.00 Gold Offers. Learn how I paid one user \$156, another \$50, many from \$45 down. Write me today for Free Book. Jim Rohan, Pres.

Belle City Incubator Co.

Box 69, Racine, Wis.



Freight Prepaid, 1, 2 or 3 Months' Home Test

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

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For Hand or Power Operation

A good spray pump is indispensable about the premises. A hundred uses will suggest themselves. The Outfit here illustrated is a fine one for spraying and can also be used for painting, white-washing, disinfecting, extinguishing fires, washing windows, buggies, automobiles, etc.

There are many different kinds of MYERS SPRAY PUMPS for both hand and power operation. Our catalog SP 16, which we will send you on request, shows all styles.

Myers Spray Pumps are made with a Patented Cog Gear Head and operate one-third easier than pumps with the old-style handle.



A HANDY PORTABLE OUTFIT FOR USE ABOUT THE BARN ORCHARD AND GARDEN.

Tank is made of galvanized iron and holds 12 1-2 gallons.

F. E. MYERS & BRO.

351 Orange St., Ashland, Ohio
Ashland Pump and Hay Tool Works

Get FREE Chicken Book

Our big, illustrated, 1916 Year-Book—"Profits in Poultry Keeping"—will help you make more money with fowls.

Tells how to raise chicks, get more eggs and make larger profits with less work. Learn about

Cyphers-Built Incubators

Sold at Low Prices

Quality unequalled. Big hatches and a guarantee that protects you; backed by 20 years of leadership. We want you to have a copy of this great Guide for Poultry Raisers. Write for it today—free.

CYPHERS INCUBATOR CO., Dept. 63, BUFFALO, N.Y.
New York Chicago Dallas
Boston Kansas City Oakland

50 Best Paying Varieties

Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Pure-bred heaviest laying strains. Fowls, Eggs, Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free. **W. A. WEBER, Box 964, Mankato Minn.**



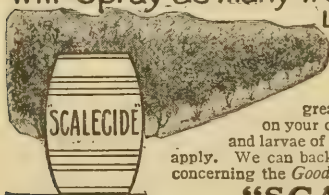
58 BREEDS Pure-bred Chickens, Ducks, Geese and Turkeys. Hardy, northern raised, vigorous and most beautiful. Fowls, eggs and incubators at low prices. America's Pioneer Poultry Farm; 21 years exp. Large free Annual Poultry book and Catalog free. **F. A. NEUBERT, Box 693 Mankato, Minn.**

Spray Your Crops

KANT-KLOG SPRAYER

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted. **Rochester Spray Pump Co. 207 Broadway Rochester, N. Y.**

One Barrel of "Scalecide" Will Spray as many Trees as Three Barrels of Lime Sulfur.



"Scalecide" has greater invigorating effect on your orchard—kills more scale, eggs and larvae of insects with half the labor to apply. We can back up this statement with facts concerning the *Good Results from Using*

"SCALECIDE"

Send for our illustrated booklet—"Proof of The Pudding". Tells how "Scalecide" will positively destroy San Jose and Cottony Maple Scale, Pear Psylla, Leaf Roller, etc., without injury to the trees. Write today for this FREE book and also our booklet—"Spraying Simplified". Learn the dollars and cents value of "Scalecide, The Tree Saver".

Our Service Department can furnish everything you need for the orchard at prices which save you money. Tell us your needs.

B. G. PRATT CO., Mfg Chemists Dept. 6, 50 Church St., New York

Write for Book Today



FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.



60 BREEDS Valuable Poultry Book 22nd Annual Edition. Free—New 100-page ens, ducks, geese and turkeys—Northern raised, hardy, beautiful. Fowls, Eggs and Incubators, low prices. America's greatest poultry farm. Write today for **Free Book.**

R. F. NEUBERT CO., Box 837, Mankato, Minn.



Latest Book Profitable Poultry. Finest published; 144 pages, 210 pretty pictures and beautiful color plates. Complete instructions how to breed, hatch, feed by improved methods, describes our busy Poultry Farm with 53 pure-bred varieties, including **Runner Ducks.** Lowest price list on fowls, eggs, incubators, sprayers, etc. This great 50c book mailed for only 5 cents. **Berry's Poultry Farm, Box 97, Clarinda, Iowa**

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Give the Quickest, Biggest and Surest Profits of Anything You Can Grow

The work is so easy and simple that even beginners make big profits from the start. Our *free book* tells how.

Kellogg's Everbearers

produce big crops of big, fancy berries from June until November. Light freezing does not affect their fruiting.

The berries are in great demand. Price ranges from 30 to 45 cents per quart. Three months after plants are set, your profits begin. Our *free book* tells the rest.

A Kellogg Strawberry Garden

will add beauty, pleasure and profit to your home. Get our *free book* and learn how to supply your entire family with delicious strawberries the year round without cost.

Great Crops of Strawberries and How to Grow Them,

the best and most complete strawberry book ever written. Fully explains the Kellogg Way. 64 pages of common sense, actual experience, strawberry facts, pictures galore.

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R. M. KELLOGG CO.
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GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

WHITE SWEET \$ 5.40 CLOVER 5 Per Bu.

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhusked and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.

A. A. BERRY SEED CO., BOX 966 CLARINDA, IOWA

850,000 GRAPE-VINES

69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive catalog free. LEWIS ROESCH, Box H, Fredonia, N. Y.

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Ornamentals, Seeds, Vines, Berry Bushes, Shade Trees, Nuts, Evergreens, Bedding Plants, etc. No risk. Save money—buy direct from America's leading growers: 62 years' experience. Hardy, Lake Erie grown stock: robust, fibrous root systems, best for transplanting. Over 1200 acres; 48 greenhouses; 7 kinds of soil. Safe arrival and satisfaction guaranteed.

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SCARFF'S Fruit Catalog

Every reader should have a copy. Over 27 years growing the finest Strawberries, raspberries, Blackberries, Currants, Gooseberries, Grapevines, etc. All kinds of Fruit Trees, Ornamental Shrubs, Privets, Barberry, Asparagus, Rhubarb, Horseradish, and Farm Seed.

Our Nursery and Farms comprise over 1200 acres in the fertile Miami Valley. Our 40-page catalog is yours for the asking. It is full of just what you want to know about fruit-growing.

W. N. SCARFF, Lock Box 50, New Carlisle, O.

Plant STRAWBERRIES

We ship plants safely to any part of the United States. Have the VERY BEST for farm or GARDEN CULTURE. Also a complete line of Raspberry, Blackberry, Gooseberry, Currant, Grapes. Acres of Everbearing Strawberry and Raspberry plants, just what you want. Greatest money-maker before the American public. Descriptive catalog free. Write now.

BRIDGMAN NURSERY COMPANY
Box 96, Bridgman, Mich.

Cultivate Horseradish....

Garden, Field, or Farm

Increasing Demand; Large Profits
100 Root Sets, with Full Information, \$1

Write for list of our \$1 Friend Makers, consisting of all kinds of fruit trees, berries, and roses. Honey wanted in payment for nursery stock.

VALLEY FARM CO., NEWBURGH, N. Y.



Free for Testing

A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL, FETERITA to plant a rod square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with THE GARDNER NURSERY COMPANY

Box 749, Osage, Iowa.

NEW STRAWBERRIES CATALOG

FREE to all
Reliable, interesting and instructive—All about the New Everbearers and other important varieties. Address C. N. FLANSBURGH & SON, JACKSON, MICH.

"Next Door to Everything"

Reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business, distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

February cash orders are subject to a special discount of 2 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St. Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy horse, and about the man badly. Now this set me thinking.

You see I make Washing Machines—the "100 Gravity" Washer.

And I said to myself, lots of people may think about my washing-machine as I thought about the horse and about the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1909 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear thru the fibers of the clothes as a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1622 Court St., Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ontario.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—White-clover comb honey, extracted, in 60-lb. cans. HENRY HETTEL, Marine, Ill.

Choice well-ripened clover honey in 60-lb. cans. J. F. MOORE, Tiffin, Ohio.

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

Clover-heartsease-goldenrod blend. Light amber, best quality, prices right. Sample, 10 cts. E. S. MILLER, Valparaiso, Ind.

FOR SALE.—Choice-grade well-ripened clover honey, good grade for bottling; put up in 60-lb. cans, GEO. M. SOWARBY, Cato, N. Y.

FOR SALE.—Basswood and clover extracted honey in 160-lb. kegs and 60-lb. cans. B. B. COGSWELL, Groton, N. Y.

FOR SALE.—10,000 lbs. white-clover extracted honey in new 60-lb. net tin cans, 2 in a case, for shipment, sample free. Address D. R. TOWNSEND, Northstar, Mich.

Amber honey, 7½ cts. per lb.; sage honey, 8½; clover honey, 10 cts. per lb. in 60-lb. cans. White comb honey, 12 to 16 cts., box by the case. I. J. STRINGHAM, 105 Park Place, New York.

Finest clover honey, 8½ cts.; buckwheat, 8, in cases of two 60-lb. cans; 6-lb. can postpaid in second zone, \$1.00. Satisfaction guaranteed. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Finest quality of white-clover-basswood blend extracted honey in new 60-lb. cans. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Poplar, locust, and blackberry extracted honey; 800 lbs. in new 60-lb. cans at \$5.00 a can. The lot at special price. Write W. A. CALDWELL, Galts Mills, Va.

Special prices on a quantity of near-water-white white-clover extracted honey in new cans and cases. Money cannot buy better honey than this. A free sample will convince you.

E. D. TOWNSEND, Northstar, Mich.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 a can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots.

ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Amber extracted honey, well-ripened and mild-flavored, 6 cts. Honey-dew honey for baking or bee-food (cheaper than sugar) 5 cts. by the case; ten cases 4½; 25-case lots, 4 cts. per pound; two sixty-pound cans to the case; also have some fall comb honey for \$2.25 to \$2.75 per case of 24 sections. H. G. QUIRIN, Bellevue, Ohio.

FOR SALE.—Choice white comb honey; 24 4 x 5 sections to the case; \$3.50 per case, f. o. b. Waymart, Pa. J. D. HULL & BRO., Honesdale, Pa.

Fine new-crop clover and basswood honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. O. J. BALDRIDGE, Homestead Farm, Kendala, N. Y.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMAYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Bulk comb, section, and extracted honey; state price and submit sample. J. E. HARRIS, Morristown, Tenn.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices. SUPERIOR HONEY CO., Ogden, Utah. "Everything in bee supplies."

FOR SALE

HONEY LABELS at money-saving prices. Samples free. LIBERTY PUB. CO., Sta. D, box 4E, Cleveland, O.

HONEY LABELS.—All styles. Catalog with prices free. EASTERN LABEL CO., Clintonville, Ct.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels and emergency wheel stands. CHARLES A. HENRY, Eden, N. Y.

FOR SALE.—Motorcycle Twin Indian, late model, fine condition, \$110. Write LEE BRUTUS, Pine Village, Ind.

FOR SALE.—70 T. tin supers; used one season—bargain if sold at once. G. LEON ALLEN, Rt. 2, Ulster, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog. W. N. SCARFF, New Carlisle, Ohio.

Good second-hand 60-pound cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grows in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BUDICK, Sunnyside, Wash.

FOR SALE.—53 supers with T tins and separators; 2000 4¼ new beeway sections, cheap. WM. ROBINSON, Rt. D, LaFayette, Ind.

FOR SALE.—If you can use 100 lbs. or more of Dadant's foundation, any grade, direct from factory, write me for reduced price. F. W. LESSER, Rt. 3, East Syracuse, N. Y.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your order.

R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

FOR SALE.—Friction-top pails, 5-lb. size, per 100, \$4.50; 500, \$21.25; 10-lb. size, per 100, \$6.25; 500, \$30.00. Low prices on other sizes in bulk. Also furnished in reshipping-cases. Shipped from Chicago. A. G. WOODMAN CO., Grand Rapids, Mich.

PATENTS

PATENTS THAT PAY. \$600,812.00 clients made. Protect your ideas. Send data. Advice and two wonderful Guide Books free. Highest references.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

BABY CHICKS.—Barrows contest entries furnish us a son to head one pen; also Wyocoff stock. Prices reasonable. LINESVILLE PULLET HATCHERY, Linesville, Pa.

FOR SALE.—Baby chicks, S. C. W. Leghorns, hatched from good utility stock on free range, \$10 per 100; also eggs at 75 cts. per 15.

O. C. RHODES, Rt. 4, Urbana, Ohio.

Poultry Paper, 44 125-page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

REAL ESTATE

I am part owner of a 183-acre farm between Cleveland and Akron; fine location; best markets; good land; offered at a sacrifice price to close estate. Can use a small place, with or without apiary, in exchange for my interest; balance, part cash, part long time.

L. A. TRUXELL, Peninsula, Ohio.

SOUTHERN LANDS are low in price, but high in productive value, make two to four crops a year, and give largest profits in grain, vegetables, fruits, live stock and dairying. Unsurpassed climate, good markets. Publications on request. M. V. RICHARDS, Commissioner, Room 27, Southern Railway, Washington, D. C.

VIRGINIA AND NORTH CAROLINA FARMS, \$15.00 per acre and up. Easy payments. Fruit, Dairy, Stock. Mild Climate. Raise Spring Lambs for early market. On Railroad. Best markets near by. Write for farm lists, information, and N. & W. Rwy. Homeseeker, all free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., 246 N. & W. Bldg., Roanoke, Va.

WANTS AND EXCHANGES

WANTED.—Bees located in Idaho. Describe, and state price. IRA DYE, 1 Ellery Ave., Irvington, N. J.

WANTED.—To buy or lease, 100 to 200 colonies of bees and location. JACOB PROBST, East Nicolaus, Cal.

WANTED.—Good bulk comb or section honey. WM. ROBINSON, Rt. D, LaFayette, Ind.

WANTED.—To exchange a six-room house, barns, some fruit, lawn, water, for bees. MRS. BALL, 212 Filmore St., Denver, Col.

WANTED.—100 colonies bees in good condition to work on shares, season 1916, either comb or extracted honey, with privilege of buying; prefer them in Oakland Co. or Wayne Co.

EARL F. TOWNSEND, Milford, Mich.

WANTED.—Second-hand automatic reversible four-frame extractor, in good condition.

C. H. TRUE, Edgewood, Ia.

WANTED.—To buy an apiary and small place in the north-central states, near good school. 69853 Box 163, Montfort, Wis.

WANTED.—To buy or rent 200 to 500 colonies bees; references and capital furnished. 69855, care of GLEANINGS, Medina, Ohio.

WANTED.—To exchange lath mill and bolter, 24-inch attrition feed-grinder, Economist steam-boiler, 12 H.P., for machinery to make honey-sections or engine lathe. GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—Party with \$300 to help finance apiary. To buy bees by pound from South by May 10 and make ready for flow coming in June. Good clover and basswood location. See my ad. in Jan. 15 issue. JUDSON A. JONES, Continental, Ohio.

If you desire to exchange your surplus, strong, healthy, striped, mixed, black, or yellow-bellied colonies for a few green-backed dollars, within 600 miles, south or west, state hives, condition, and price. W. A. SMALL, Waltham, Mass.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

See our large ad. elsewhere in GLEANINGS.

M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—Fifty colonies of bees.

J. R. MARVE, Bunceton, Mo.

FOR SALE.—175 colonies of bees with good location F. M. SNIDER, Collbran, Col.

FOR SALE.—200 colonies of bees; 5 acres land with orchard. N. L. ANDERSON, bx 386, Spearfish, N. D.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later. N. FOREHAND, Ft. Deposit, Ala.

Bees by the pound shipped anywhere in the U. S. or Canada. Safe arrival guaranteed. Capacity, 100 lbs. a day. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE, or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

FOR SALE.—25 hives Italian bees in Danzenbaker hives, \$4.00 per hive, with supers; nine colonies in eight-frame hives; all in good condition; no disease. B. F. HARFORD, bx 63, Asherville, Mitchell Co., Kan.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June, 75 cts. each; 6 for \$4.25; 12 for \$8.00. For larger lots write CURD WALKER, Jellico, Tenn.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

We are booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young untested Italian queens, 75 cts. each, or \$8.00 per doz. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Shipped one order of 409 lbs of bees; 133 3-lb., and 2 5-lb. packages with queens. They go thru to party in Ontario, Canada, in fine shape.

M. C. BERRY & Co.,
Successors to Brown & Berry, Hayneville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. THE DEROY TAYLOR Co., Newark, N. Y. (formerly Lyons).

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

M. C. Berry & Co., Successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list.

M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—400 colonies Moore strain bees in good location. Combs built on full sheets of foundation. Everything in first-class shape. Principal source of honey is alfalfa. Located in the Rio Grande Valley, under the largest irrigation project in the United States.

THE CROWN APIARIES, Mesilla Park, N. M.

QUEENS.—Italians exclusively; golden or leather-colored. One select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

Largest apiaries in Southwest for sale, in lots to suit purchaser up to 1300 colonies. Nine good locations. Up-to-date equipment. Located in the heart of large alfalfa region of southern New Mexico. Assured of perpetual water supply from recently completed Government irrigation reservoir. Excellent climate. Bees winter well out of doors. No spring dwindling. Three miles from State Agricultural College and town of 5000. Owners have other interests, and can't devote time to the bees, so will sacrifice them for quick sale. Correspondence solicited.

METCALFE & PARKS, Mesilla, N. M.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen, \$1.25 after March 20. No reduction for less than 50; 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with ¼ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

HELP WANTED

WANTED.—Young man to work with bees season of 1916. No tobacco-user need apply; or will sell half interest to right party with small payment down. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

WANTED.—Two men to work with bees the coming season; little experience necessary; full particulars by first letter. B. B. COGSHALL, Groton, N. Y.

WANTED.—Young man to work with bees the coming season; little experience necessary. State experience, and wages expected in first letter.

E. L. LANE, Trumansburg, N. Y.

WANTED.—Beeman immediately. Can give steady employment to right man. Give reference, state experience, and wages wanted.

W. J. STAHMANN & Co., Clint, Texas.

WANTED.—Energetic young man (preferably married) who has had experience with bees, and understands queen-rearing, to take charge of apiary of 200 colonies with opportunity to increase to 400. Steady employment on ranch when bees do not require attention; must have farm experience. Salary and percentage of honey. F. L. HOGUE, Lompoc, Cal.

WANTED.—For large and growing business, farm-raised man of good habits, experienced in extracted-honey production, and willing to help at light farming when not busy with apicultural work. Good permanent position for right party. One acquainted with autos preferred. Particulars on application. Address 36602 "OUTYARDS," Gleanings in Bee Culture, Medina, Ohio.

SITUATIONS WANTED

WANTED.—A situation as assistant queen-breeder or for both comb and extracted honey; am expert at both; will go either north or south.

S. B. BARDEN, General Delivery, Philadelphia, Pa.

Married man, age 37, wants position as apiarist; has handled bees since childhood. Understands either comb or extracted production, and queen-rearing in full colony.

J. C. ADAMS, 20th and Rose, Detroit, Mich.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00 return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.

H. G. QUIRIN, Bellevue, Ohio

QUEENS.—Improved three-banded Italian bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

You can have your beeswax made into *best quality* foundation; also the wax from old combs or slungum. We get it all out. On shares or very cheap for cash. New factory. Old liberal terms. Cheapest and handiest transportation for all Northern beekeepers. You always get your own wax back. J. J. ANGUS 454 Fulton St., Grand Haven, Mich.

Convention Notices

A meeting of the New Jersey Beekeepers' Association will be held in the Entomology Building, Bleeker Place, New Brunswick, N. J., on Feb. 10, 11, 1916. Mrs. Geo. Demuth, of the Bureau of Entomology, Washington, will address the meeting. Others will discuss various phases of the business. Don't fail to hear the man who wrote Farmers' Bulletin No. 503.

New Egypt, N. J.

E. G. CARR, Sec.

THE NATIONAL BEEKEEPERS' ASSOCIATION CONVENTION, HOTEL SHERMAN, RANDOLPH AND CLARK STS., CHICAGO, ILL., FEB. 22, 23, 24, 1916.
PROGRAM

MORNING SESSION, 9 O'CLOCK, FEB. 22.

Delegates to the National Beekeepers' Association convention will present their credentials to the secretary at the Hotel Sherman before 9 A. M., Feb. 22. Opening of convention,

by Dr. Burton N. Gates, President
Appointment of committees
Reports of officers and committees
Discussion, "The Work of the National Association"
Paper, State Organization,

by Benjamin P. Sands, Boston, Mass.

AFTERNOON SESSION, 1:45.

Address, Extending the Use of Honey in Cooking,

by E. H. Bruner, Chicago

Address, Teaching the Value of Honey in Our Public Schools,

by Geo. W. Williams, Redkey, Ind.

Paper, Advertising and Selling Ripe Honey,

by R. M. Spencer, Ventura, Cal.

Paper, Use and Misuse of Prime Swarms,

by Grant Anderson, San Benito, Texas

EVENING SESSION, 7:30.

Address, Possibilities and Limitations of Inspection,

by Frank C. Pellett, Atlantic, Ia.

Address, Beekeeping in Canada (illustrated),

by Prof. Morley Pettit, Guelph, Ontario

MORNING SESSION, 10:00, FEB. 23.

Address, Out-apariers,

by C. P. Dadant, Hamilton, Ill.

Address, Insuring Honest Queen Values,

by Kenneth Hawkins, Plainfield, Ill.

Paper, Importance of Bees in Pollinating Economic Plants,

by L. H. Pammel, Ames, Ia.

AFTERNOON SESSION, 1:45

Address, Establishing a Trade Name,

by E. R. Root, Medina, Ohio

Address, The Comb-honey Market,

by R. A. Burnett, Chicago

Address, Shipping Honey, by F. G. Snook, Akron, O.

The Depressed Honey Markets,

by J. E. Pleasants, Orange, Cal.

Paper, The Qualities of Western Honey,

by J. H. Stoneman, Blackfoot, Ida.

NATIONAL BEEKEEPERS' ASSOCIATION BANQUET,

7:00 P. M.

Evening session immediately following the banquet.

Address, Beekeeping Improvement thru Agricultural School Work,

by Prof. Francis Jager, St. Paul, Minn.

Paper, Varying Characteristics of European Foul Brood,

by Grover Matthews, Filer, Ida.

MORNING SESSION, 10:00 A. M., FEBRUARY 24.

Paper, The National Honey Day and Its Possibilities,

by Floyd E. Smith, Dallas, Oregon

Discussion and demonstration,

Shipping Honey by Parcel Post,

led by E. D. Townsend, Northstar, Mich.

AFTERNOON SESSION, 1:45.

General discussion

Election of officers and directors

Adjournment

It will be seen that the last day's program is not very full. This program will be extended when the plans not completed at this writing are finished.

WESLEY FOSTER, Sec.

TRADE NOTES

EARLY CASH ORDERS.

The discount for early cash orders is two per cent for the month of February. This is worth saving. If you know what your needs are, send in your orders. There are two added reasons for being forehanded this season. In many cases there is an increasing delay in delivery of shipments because many railroad lines have more business than they are able to handle promptly. In some instances, especially in the East, conditions are so bad that there is an embargo on all shipments of freight except perishable goods. Then, too, the effect of the great war on the prices of many things is raising prices of materials to such an extent that we shall be compelled to increase selling prices on numerous articles into which these materials enter when our

present stocks are used up and we have to buy further supplies. For all three reasons, therefore, you will be wise in placing your orders early for such goods as you need.

HOTBED SASH.

The time is here for starting early-vegetable plants in a cold frame. If you are not provided with sash, remember we can supply them as usual, made of cypress, 3 feet 4 inches by 6 feet, 1½ inches thick, for 4 rows of 8-inch glass, shipped KD, \$1.00 each; \$4.75 for 5, or \$9.00 for 10; 8 x 10 glass for same at \$2.80 per box of 90 lights. Three boxes will fit up 10 sash.

ALSIKE-CLOVER SEED.

We have secured a fair lot of alsike-clover seed which we offer, while it lasts, at \$22.00 per bag of 2 bushels; \$11.50 per bushel; \$6.00 per half-bushel; \$3.25 per peck; 25 cts. per pound, bags included, not prepaid. Alsike seed is so fine that four to six pounds to the acre is sufficient for a good stand. The market is quite firm on medium and mammoth clover seed, and it is worth, as a rule, 50 cts. to \$1.00 per bushel more than the price here named for alsike. We do not carry it in stock, but can get it for those who cannot conveniently obtain it near home.

SWEET-CLOVER SEED.

Having now secured a good stock of choice western hulled white-sweet-clover seed, we are prepared to offer much lower prices than have ruled for some time past. There has been a larger crop of seed harvested, and we believe there is also an increased demand. The scarifying process, insuring very high germination of the seed, makes ten pounds per acre sufficient where twenty to twenty-five has been recommended. This fact makes the same quantity of seed reach twice as far; or, to put it another way, to seed the same number of acres, only half the amount of seed is required. This fact, together with the increased production of seed, has prevented this year the usual advance in price. Some producers who have been holding their seed for the high prices which have prevailed the past two seasons are, we fear, going to be disappointed.

The hulled seed, which we offer for shipment from Medina, is scarified. The unhulled is not, because the hulls must first be removed before the hard shell of the seed kernel can be scratched. It does not pay to use unhulled seed, even at half the price of hulled and scarified seed, because, as a rule, the per cent of germination in unhulled seed is usually quite low. Too often a poorer stand will be secured with two or three times the number of pounds per acre of unhulled seed than of hulled and scarified seed. Nevertheless, we can still furnish the unhulled seed to those who want it.

Until further notice we quote the following prices:

	In lots of	1	10	25	100
		lb.	lbs.	lbs.	lbs.
Hulled white sweet clover,					
<i>Medilotus alba</i> , ...	24c	22c	21c	20c	
Hulled yellow sweet clover,					
<i>Medilotus officinalis</i> , ...	20c	18c	17c	16c	
Hulled yellow annual,					
<i>Medilotus Indica</i> , ...	8c	6c	5c	4c	

Unhulled white or yellow at 6 cts. per pound less than the hulled for the same quantity. Those who can use large quantities should write us. We may be able to supply the hulled and scarified seed from western Iowa or Kansas in good-sized lots at attractive prices.

THE A. I. ROOT CO., Medina, O.

I am Anxious to Serve You
L. W. Crovatt, Box 134 Savannah, Ga.

Root's Goods Exclusively

Warehouse, River and Abercorn Streets
1916 Catalog sent on request

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

Planet Jr. Hand Cultivators

The garden tools for big results

They are saving time, lightening labor, and producing better crops for over two million farmers and gardeners. Planet Jr tools last a life-time. Fully guaranteed. **72-page Catalog, Free!**

Describes over 70 tools including 12 entirely new ones, and improvements to our Seeders, Wheel-Hoes, Horse-Hoes, Harrows, and Corn, Potato, Orchard, and Beet Riding-Cultivators. **Write for it today!**

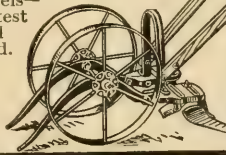
S L Allen & Co Box 1106S Philadelphia

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow pays for itself in a single season in the family garden as well as in larger acreage. Sows all garden seeds (in drills or hills), plows, opens furrows and covers them, hoes and cultivates easily and thoroughly all through the season.

No. 11 Planet Jr Combined Double and Single Wheel-Hoe, Cultivator, Plow and Rake. Straddles crops till 20 inches high, then works between. The plows open furrows and cover them. The cultivator teeth work deep or shallow. The hoes are wonderful weed-killers. The rakes do fine cultivation and gather up trash. Unbreakable steel frame. Strong high steel wheels and specially hardened steels—new this year. The greatest hand-cultivating tool in the world.

No. 11

We make 32 styles of seed-drills and wheel-hoes—various prices.



NEW KEROSENE LIGHT

Beats Electric or Gasoline

10 DAYS FREE

Send No Money

We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test 10 nights. You can't lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it **BURNS 50 Hours On ONE GALLON**

common kerosene (coal oil), and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white steady light, nearest to sunlight. It's **GUARANTEED.**

Get FREE Book

Won Gold Medal

Aladdin
MANTLE LAMP

MEN WITH RIGS OR AUTOS MAKE \$300 A MONTH

No Money Needed
We Furnish Capital

Without any sales experience, yes even without capital, you can make a big success by placing the Aladdin on trial. If you haven't capital we will help you with our liberal credit plan.

Every home wants and needs this wonderful light, that from half the usual amount of oil produces the brightest, mellowest light obtainable. To sell the Aladdin is a simple matter of getting the light into people's hands. After a trial nobody wants to go back to old feeble lighting methods. Hundreds of men are making \$100 to \$300 a month. Here are two letters just like thousands we receive:

"Out of eight calls I sold six. Then ordered in four dozen lots and sold five lamps a day. My patrons all say they are fine after using them a year."—H. B. Stewart, S. Dak.

"Between Jan. 2 and Feb. 20, I sold about 275 lamps. I never saw anything that would sell equal to it."—Charlie Conrad, Ohio.

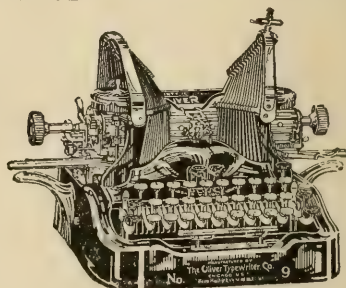
Get One FREE We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp **FREE** (or showing it to a few neighbors and sending in their orders). Write quick for beautifully illustrated **FREE Book** and get full particulars. Address nearest office

Sample Sent Prepaid—10 Days FREE to responsible men. Tell us what territory you prefer, whether you have a rig or auto so you can work in country, how long you have lived in the community, etc., so we can give you full information, agency terms, credit plan and sample lamp for free trial.

MANTLE LAMP COMPANY, 1224 Aladdin Building, CHICAGO
Largest Kerosene (Coal Oil) Mantle Lamp House in the World
Also Offices and Warehouses at: New York City, Portland, Ore., Montreal and Winnipeg, Can.

A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

Caution!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

17 CENTS A DAY! Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features. Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

TODAY--Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

Warning!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows that you want the finest model.



Gleanings in Bee Culture

Vol. XLIV

FEBRUARY 15, 1916

No. 4

Gleanings in Bee Culture Magazine Clubs for 1916

GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$2.25
YOUTH'S COMPANION 1 year,	\$2.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$3.20
WORLD'S WORK 1 year,	\$3.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.60
PICTORIAL REVIEW 1 year,	\$1.50	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.50
THE MODERN PRISCILLA 1 year,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.10
WOMAN'S WORLD 1 year,	.35	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.50
LITTLE FOLKS 1 year,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$2.00
GARDEN MAGAZINE 1 year,	\$1.50	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.75
RURAL NEW YORKER 1 year,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.30
FARM JOURNAL 5 years,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.50
THE PRACTICAL FARMER 3 years,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.15
OHIO FARMER 1 year,	.50	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.10
FARM AND FIRESIDE 1 year,	.50	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.50
AMERICAN POULTRY JOURNAL ..1 year,	\$1.00	
GLEANINGS IN BEE CULTURE....1 year,	\$1.00	} Both for \$1.10
POULTRY LIFE 1 year,	.50	

(Devoted to progressive poultry culture in the Northwest)

Because of additional postage required, these offers do not apply in Canada, in foreign countries, nor to residents of cities in which the magazines are published if extra postage is required to mail the publication to such subscribers.

Gleanings in Bee Culture, . . . Medina, Ohio



THE IDEAL BEE-VEIL

Oftentimes when out in the yard working with the bees one stoops over to pick out a frame, and, as usual, bees keep buzzing around his head, watching for a chance to sting. The cloth veil which is often used sticks to the face when one bends over, and gives the bees an opportunity to sting. The IDEAL BEE-VEIL is constructed of cloth of wire, there being a cord at the top of the veil used to pull the cloth around the crown of the hat. The lower part also has a cord which fastens around the waist. The wire on the IDEAL veil does not strike the face, and prevents the bees from stinging. It can be readily seen that a veil of this kind has the cloth veil far outdistanced for comfort and utility. Sparks from the smoker do not burn holes in the IDEALS as in the netting veil.

The veil is manufactured by us, and is recognized by the best and largest beekeepers as the most practical veil on the market.

Red Catalog, postpaid. "Simplified Beekeeping," postpaid.
Dealers Everywhere.

W. T. Falconer Mfg. Co. . . . Falconer, N. Y.

Where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and capping white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

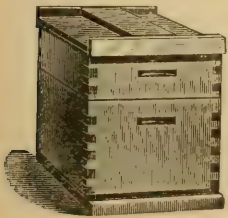
Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



Early-order Discounts will
Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

CINCINNATI.—Very little honey is selling at present. We quote No. 1 comb at \$3.75 to \$4.00; No. 2 at \$3.50 to \$3.75; white clover extracted in cans, 7 and 9; amber in barrels, $\frac{1}{2}$ to 7, according to quality and quantity. For choice bright yellow beeswax we are paying 28 cts. per lb. delivered. Cincinnati, Feb. 3. THE FRED W. MUTH CO.

ZANESVILLE.—The market shows no material change as regards demand or prices. In small lots the better grades of white comb bring around \$4.00 per case, jobbers receiving customary discount from prices to the retail trade. White extracted we quote at 9 to 11 cts., according to quantity. Producers receive for beeswax 28 cts. cash, 30 in exchange for merchandise. Zanesville, Feb. 8. E. W. PEIRCE.

DENVER.—Local demand for comb honey is light, with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1 per case, \$2.93; No. 2 per case, \$2.70; white extracted, $8\frac{1}{2}$ to $8\frac{3}{4}$; light amber, 8 to $8\frac{3}{4}$; amber, 7 to 8. We pay 25 cts. per lb. in cash and 27 in trade for clean yellow beeswax delivered here. THE COLORADO HONEY-PRODUCERS' ASSOCIATION. Denver, Feb. 4. F. Rauchfuss, Mgr.

ST. LOUIS.—The demand for both comb and extracted honey of late has been very mild, and we believe stocks here are quite ample to supply the demand. We are still quoting white comb honey, 24 sections to the case, at \$3.25 to \$3.50. Amber, \$2.50 to \$3.00; extracted honey in 60-lb. cans from 5 to 6, according to quality. Beeswax is firm at $28\frac{1}{2}$ for pure, impure and inferior less. R. HARTMANN PRODUCE CO.

St. Louis, Feb. 7.

INDIANAPOLIS.—There is quite a demand for honey at present, but more especially extracted. Comb honey has been moving rather slowly of late. We are not buying any comb or extracted, but we are being offered honey by producers, and they seem very anxious to dispose of it. We are selling No. 1 or choice white comb honey at \$3.75 to \$4.00 per case; No. 2 white comb at \$3.50. Best quality of extracted is bringing $9\frac{1}{2}$ to 11 cts. We are paying 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, Feb. 4. WALTER S. POWDER.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

**LEWIS' BEEWARE, DADANT'S FOUNDATION,
ROOT'S EXTRACTORS, SMOKERS, ETC.**

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

QUEENS FOR EARLY SPRING DELIVERY

We conduct a Bee and Queen Rearing Business in Florida during the winter, and at Canton, Ohio, during the summer. We now have a carload of selected Italian Bees in Florida for the purpose of supplying you with Bees and Queens for EARLY SPRING DELIVERY. WE GUARANTEE PURE MATING AND SATISFACTION IN EVERY RESPECT, OR MONEY REFUNDED. We are breeding from Queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. Will it not pay you to have this strain of bees in your yard? Prices as follows:

ISLAND-BRED ITALIAN QUEENS.

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens,
\$5.00 and \$10.00 each.

PRICES ON BEES BY THE POUND F. O. B. SHIP- PING POINT. Shipment begins May 10.

	1	6	12
½-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus.	\$2.00	Three-frame Nuclei ...	\$4.00	Eight-frame Colony ...	\$ 8.50
Two-frame Nuclei	\$3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

Address all communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

QUEENS OF QUALITY

The editor of *The Beekeepers' Review* and his sons have 1100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt colonies desirable as breeders from a honey-producers' standpoint. Likely, never in the history of beekeeping was there a better opportunity to test out the honey-getting strain of bees than this. Think of it, 1100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor season (with us), while the average of the entire 1100 being not more than 40 pounds per colony. We have sent two of our best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben C. Davis, both of Spring Hill, Tenn., and they will breed queens for the *Review* during the season of 1916 from those four superior honey-gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three-banded strain of Italians; also that of John M. Davis; while Ben C. Davis breeds that disease-resisting strain of goldens that is becoming so popular.

By this time you are ilikely thinking that your strain of bees may be improved some by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as a breeder. We will tell you. They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review*, and one of those famous queens. These queens are well worth two dollars each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber to *GLEANINGS* a subscriber to the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address with remittance

THE BEEKEEPERS' REVIEW, Northstar, Michigan.



ITALIAN QUEENS

THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street



Established 1885

It will pay you to get our 64-page catalog and early-order discount

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The A. I. Root Co's brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

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Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

If Your Bees Have Foul Brood

Get my queens -- 5 per cent off for cash orders in February -- Three-band and Golden Italians

One Untested Queen, \$1.00, six, \$5.00. One Tested Queen, \$1.50; six, \$8.00. One-frame Nuclei, \$2.00; 2-frame, \$3.00. Add price of queen wanted.
½ lb. bees, \$1.50; 1 lb., \$2.50.

W. J. LITTLEFIELD, LITTLE ROCK, ARK.
414 West 7th Street

Gleanings in Bee Culture

E. R. ROOT A. I. ROOT H. H. ROOT J. T. CALVERT
 Editor Editor Home Dept. Managing Editor Business Mgr.
 Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, Grace Allen.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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PARIS, FRANCE.—E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 3 francs.

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Honey market reports continued from page 2.

NEW YORK.—There is a very light demand for comb honey and light extracted. Buckwheat extracted has a fairly good demand at 6 to 7. Shipments from foreign countries are light, and the market is pretty well cleaned up on these grades. West Indian is selling for 50 to 55 cts.
New York, Feb. 9.

CHICAGO.—Little can be said in the way of reporting sales of honey during the past two weeks, for the reason that sales have not been made in any volume. January is always a dull month, and has been unusually so, as far as this market is concerned; consequently prices are nominal, concessions being made to induce business. The best grades of white comb honey are bringing 15 to 16; the under grades from 1 to 3 cts. less. Extracted white ranges from 7 to 9, according to kind and quality, and amber grades from 5 to 7. Beeswax brings 30.
Chicago, Feb. 4. R. A. BURNETT & Co.

Convention Notices

The annual convention of the Pennsylvania State Beekeepers' Association will be held in the Chamber of Commerce, Lancaster, Pa., March 3, 4, 1916. An interesting program is in preparation. Every beekeeper, whether member of the association or not, is urged to be present. A good meeting is looked for.
H. C. KLINGER, Sec.
Liverpool, Pa., Feb. 1.

SPECIAL NOTICES

We have just finished printing 54,000 seed catalogs for our old-time friend Mr. A. T. Cook, of Hyde Park, N. Y., who expects to do a larger business this year than ever. You will remember Mr. Cook as an old advertiser of temperance cards as well as seeds. He has a good supply of both on hand, and is now ready to take prompt care of all his customers. Now is the time to begin thinking about that garden, and we are sure it will be a pleasure for you to look over Mr. Cook's catalog.

VALUABLE FREE BOOKS.

Every farmer who owns an engine or expects to buy one ought to know about engines—how to judge them, how to apply simple tests, how to figure exactly what an engine is worth. This interesting and valuable information is given in the free illustrated book, which will be sent without any obligations to any reader. Simply send name today to E. H. WITTE, 193 S. Oakland Ave., Kansas City, Mo.

EXPERIENCE VERSUS THEORIES.

The best products manufactured today are those which are built on experience. Now, we will take as an example Farm Fence, because this is an article that almost all farmers buy each year. A fence built on Shop Theories is one thing, but a fence built on experience to meet the farmer's requirements, one that has successfully stood the test for years and years, is quite another matter. Kitzelman Brothers, of Muncie, Ind., whose ad. appears in this issue, are making a fence that is built on experience. It contains many practical ideas of farmers themselves, as they have been selling their fence direct to the farmer for 33 years. They have learned from experience what a farmer's fence ought to be to give satisfaction from a farmer's standpoint. You should write for their free catalog at once if you are interested in securing a good grade of fencing at money-saving prices.

All poultry enthusiasts will be interested in the catalog recently issued by the Model Incubator Co., of Buffalo, N. Y., and New York city, bearing the title "First Aid to Poultry-keepers." Not only the beginner but the experienced well-versed breeder will find the catalog of the greatest help in all the many and varied problems of poultry-raising. Being compiled by authorities it is a book which should be in the hands of every one now in the business and every one who intends to enter the business. It is attractively gotten up, well illustrated, and substantial enough to be used as a

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with

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of MEDINA, O.

The Bank that pays 4%

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VICE-PRESIDENT

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

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No. 25 screw cap, \$4.60 gross. . Shipping-cases and cartons.
Amber honey, 7½ cts. pound; light honey, 8½ cts. pound. Catalog free.

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Apiaries, Glen Cove, L. I.



Free for Testing

A pair of plants EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETERITA to plant a rod square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with
THE GARDNER NURSERY COMPANY
Box 749, Osage, Iowa.

handy book of reference. You can do no better than send a postal request for the catalog if you are interested in the subject.

We call particular attention to the advertisement of Mr. Herman A. Clark, of Saratoga, Cal., who is advertising dried prunes. The editor visited his ranch last winter and was delighted to see the kind of fruit he is putting out. Mr. Clark is an old Medina County boy, well known to all the members of The A. I. Root Company, and we can vouch for his responsibility. Any one who gives him a trial order will be almost sure to give him a repeat order as his goods are first-class in every respect.

PRACTICAL BOOKS FOR THE GARDENER AND THE FARMER.

The above is the title of a four-page leaflet we have just finished printing. This contains a list of standard practical books which answer questions that occur every day. They tell what to do. They are written for the specific use of the gardener and farmer, amateur or professional, furnishing the latest and most authoritative information on every phase of agricultural or horticultural work, on a large or small scale. An edition of 5000 of these leaflets is just off the press. Send for one so you can decide which books will be of the most benefit to you. THE A. I. ROOT COMPANY, Medina, Ohio.

NOW IS THE TIME

To order your supplies, and thus
have every thing in readiness for
the spring besides saving 2 per cent

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the bee-keeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

Beekeepers' Prescription Book

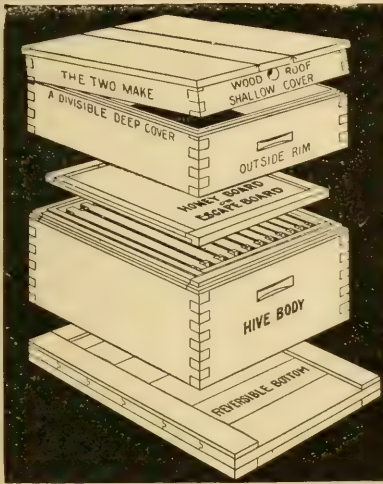
For Failures,
Discouragements, etc.

R_____

One Root Catalog giving description
and prices from which an order
is made out and sent to

(Signed)

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio Rivers.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order): Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1916 and let us figure with you.

A. G. Woodman Co., Grand Rapids, Mich.



Your BEESWAX
Manufactured into
"Superior" Foundation
on shares. Write for special prices.
SUPERIOR HONEY CO.
Ogden, Utah
(Weed Process)



Beehives and Supplies
at factory prices; satisfaction guaranteed or your money refunded.

Please write us today for our catalog and special discount to new customers

W. H. FREEMAN, PEEBLES, O.

The Beekeepers' Review Clubbing Offer for 1916

The REVIEW for 1916	\$1.00	} ALL FOUR FOR ONLY \$3.00
Oct., Nov., and Dec., 1915, free		
American Bee Journal for 1916	1.00	
Gleanings for 1916	1.00	
One REVIEW HONEY QUEEN	1.00	
Total	\$4.00	

For description of REVIEW QUEEN see another page.
Address with remittance

The Beekeepers' Review, Northstar, Michigan

Pennsylvania BEEKEEPERS!

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

The Leading House in
New England for
Beekeepers' Supplies
and a Prompt Shipment Promised

I also have some nice grade Vermont Pure Maple Syrup which I can offer at \$1.25 per gallon, f. o. b. my station.

Robert G. Coombs
Guilford, Vt.

LOS ANGELES HONEY CO.
633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

Candy for WINTER STORES

Why not be sure your bees have enough for winter by giving each colony one or two plates of candy? We have it in large paper plates weighing about two pounds, enough to last a colony three or four weeks. Can be sent by post. Write for prices, also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

BEE SUPPLIES Send your name for new 1916 catalog out in January.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Ave., Kansas City, Mo.

Equipment purchased during the quiet winter months may be made ready for busy spring and summer months. The early-order discount pays you interest on your money.

“Root Quality” equipment means BEST QUALITY equipment. The Root bee supplies are up to the minute. The most complete line of bee supplies made.

We sell Root's Goods in Michigan. Order from Root catalog, or we will quote on request. February, cash discount, 2 per cent. Beeswax wanted.

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.

When You Think of Bee Supplies, Think of Indianapolis

We Sell Root's Bee Supplies
---the Goods that Satisfies....

Indications just now are very favorable for a good season next year. A good season means an excessive demand for Root's goods at Root's prices. By ordering now you will receive your goods promptly, also save the cash discount for early orders, which is two per cent in February, and you can put them together in your spare time.

If you are interested, and it is your intention to order your supplies before goods are really needed, just try placing a trial order here. We are quite sure you will continue with us year after year. Some, of course, never buy supplies till after they are needed. But the men who are most successful are preparing right now for next season.

We allow you 30 cents a pound in trade for good average beeswax delivered here.

Finest extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

"Next Door to Everything"

Reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business, distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

February cash orders are subject to a special discount of 2 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St. Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't

know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, altho I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear thru the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1623 Court St., Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ontario.



1916--Advance Lewis Bee-supply News--1916

THE NEW LEWIS CATALOG this season, like BARNUM'S CIRCUS, is better, bigger, and grander than ever.

As a progressive beekeeper, you read the bee-journals, all the bee-books you can get, and attend the conventions, BUT—

IF you do not get the LEWIS CATALOG FOR 1916 you are neglecting a liberal bee education. In no other form can you get so much good, meaty knowledge about bee fixtures, apparatus, tools, and whatnot as you can right in the LEWIS CATALOG—and the pity of it is, the man who does not avail himself of this opportunity passes up that which he may have for the asking—for it is free.

Send Right Now for a New Lewis Catalog

Here are Only a Few of the Distinctive Features Contained in It.

Our NEW METAL-BOUND DIVISION-BOARD in the full-depth size is to be found illustrated, described, and listed.

A very good tool in the shape of a KNIFE FOR SCRAPING AND CLEANING FILLED SECTIONS is illustrated, described, and listed.

A WOVEN WOOD-AND-WIRE CHEST, which is a low cost article with many uses, is illustrated, and described.

One page is given over to the RAUCHFUSS FOUNDATION CUTTING-BOX, a practical little outfit for the beekeeper.

Two other articles, a SECTION-HOLDER NAILING-FORM and FRAME WEDGE DRIVER are offered.

Two whole pages of INSTRUCTIONS TO BEEKEEPERS BY C. P. DADANT will be found interesting to the old beekeepers as well as the new.

One page devoted to the PROSPECTIVE BEEKEEPER is very interesting, and many new thoughts are presented.

Published only by

G. B. Lewis Company, Manufacturers of
Lewis Beeware Watertown, Wisconsin
Get Your Copy Now.

SWEET - CLOVER SEED

Quick Germination

Get our "Scarified" Sweet-clover Seed, which will germinate from 85 to 95 per cent the first year, and thus insure you a good stand right from the start. By sowing our seed you will save money, as it takes only about half as much scarified to sow an acre as ordinary hulled seed.

Prices	1 lb.	10 lb.	30 lb.	100 lb.	60 lb. a bu.	5 bu. a bu.	10 bu. a bu.	Lbs. per acre
Unhulled White, re-cleaned.....	\$0.25	\$2.00	\$5.10	\$16.00				
Hulled White, re-cleaned and scarified.	0.30	2.75	6.75	22.50	\$13.50	\$4.80	\$4.50	25 to 30
Hulled Yellow, re-cleaned and scarified	0.20	1.80	5.10	17.00	10.20	9.50	9.00	6 to 10
(<i>Melilotus Officinalis</i>)								8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel-post shipments.

Please Note—All of our seed is thoroly cleaned. The scarifying process usually breaks some of the seeds, and we remove all broken seeds. This is an important saving to you. Samples on application.

Dadant & Sons, Hamilton, Illinois

YELLOW SWEET CLOVER.—Many people fail to recognize the value of the biennial yellow sweet clover as a honey-plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper. Be sure, however, to get the biennial variety as quoted above.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

FEBRUARY 15, 1916

NO. 4

EDITORIAL

A Short Course in Apiculture in Indiana

OUR Indiana readers, at least, will be glad to know that there will be given a short course in bee culture at the Winona College of Agriculture, Winona Lake, Ind., during the week of March 20. We hope to present the program of the work later on.

Varying the Size of the Entrance During Winter

IN the case of outdoor-wintered colonies be sure that the entrance to the passage-ways is not clogged with dead bees. When the bees are confined at the home yard the entrances may be contracted during severely cold weather, or during a time when there is a high wind, to advantage; but it should be enlarged when the weather moderates. In making the contraction, do not disturb the bees.

The Curse of Goldens

ONE would almost think that we had inspired Mr. Arthur C. Miller and Mr. S. H. Burton to write their articles on goldens in this issue. Quite the contrary. As a matter of fact, we believe Mr. Miller, at least, is a little hard on them, for not all goldens that we have had any experience with were as bad as those he describes. The California Beekeepers' Association, Mr. Chadwick reports, also knocks them.

The average beekeeper should understand that when he buys queens or colonies of the extra-yellow strain he buys some good and some bad.

A Correction; Those 4100 Cases of Honey

IN William Lossing's letter, page 2, editorial department, we inadvertently in the copy made him say he produced 4100 cases of honey, when it is evident that he meant to say that he had only *shipped* that number. If he had produced this amount of

honey he surely would be some beekeeper. Many are writing him, desiring to know if there are other locations like that, notwithstanding the territory he says is already overcrowded. It surely would be good bee country if there were many beekeepers producing 4100 cases of honey.

Our apologies are due to Mr. Lossing and to the beekeepers in the valley, several of whom we know personally, having visited them some years ago.

Lectures and Demonstrations in Connecticut

THE trustees of the Connecticut Agricultural College have engaged A. W. Yates, of Hartford, to give a course of lectures on beekeeping, accompanied by demonstrations. The lectures will be given on Saturdays during April and May, and will be open to students and others who may be interested in this subject. The topics of the lectures are as follows:

1. Establishing an apiary. Natural history, hives and location, adaptability of the person.
2. Comb and wax. The mystery and origin of wax, its relation to honey, commercial value.
3. Spring management. The early necessity of a force of young bees to care for the queen, spring dwindling, stimulative feeding.
4. Diseases of bees. Causes, how to detect, treat, and prevent.
5. Increase and queen-rearing. The importance of good queens, easy methods of rearing and making increase.
6. Wintering. Providing the colonies with sufficient stores in a compact brood-nest, packing, ventilation, and feeding.

The Nuisance of the Follower-board or the Division-board in the Modern Hive

REFERRING to what Mr. J. E. Crane has to say on page 141 in commenting on the statement of E. F. Atwater on the flimsiness of the average division-board in the modern hive, we may offer this suggestion:

Leave it out entirely. We have been doing it for the last two years, and use it only when there is less than a full complement of frames in the hives. In our opinion a clumsy thick follower-board in a ten-frame hive with nine frames will not help matters much. What we need is extra room without a follower-board.

That room is not needed with the ordinary unspaced frames that can be squeezed closer together to remove the one desired. But with the self-spacer there is or should be, at least, extra room in the hive. By removing that naughty division-board, and keeping it out where you have a full complement of frames, with either eight or ten frame hives the extra room will be provided.

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First Annual Report of the Minnesota Inspector of Apiaries

MR. CHARLES E. BLAKER, the State Inspector for Minnesota, has just put out his first annual report. It is unfortunate, as Mr. Blaker says, that up to 1915 there is no available record of inspection work in the state, which handicaps the work somewhat.

So far the work has been chiefly with American foul brood, as the European type of the disease has not made much of a start. It was reported in 1914, and then discovered in several other points in 1915. On account of the danger existing when this disease becomes prevalent, a full description is given of it, methods of treatment, etc., along with descriptions and methods of treatment of American foul brood and of sacbrood.

Out of 452 apiaries visited, disease was found in 57; 7114 colonies were examined, and 269 found diseased.

Beekeepers of Minnesota may obtain a copy of this report on application to Chas. E. Blaker, Inspector, 4420 Grimes Ave., Minneapolis.

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Bees and Smelter Smoke, again

IN our issue for Dec. 15, page 915, we stated that the beekeepers of Ontario, Canada, were about to bring suit against a silver-smelting company for alleged damages to their interests in the sum of \$30,000. We have heard nothing further from this, altho the case was to come up in the courts in November. Whether it has been settled we are unable to say. At all events, we learn from a clipping from the *Illustrated Buffalo Express* of December 19 that means have been discovered for eliminating almost entirely the injurious effects of smelter smoke on either plants or animals. As the

Buffalo paper is published near the scene of the trouble referred to, it is possible some compromise has been effected, or that the damage claimed is merely nominal.

It appears that the new means of filtering the smoke prevents the incrustation of certain chemicals on vegetation which, when eaten by animals, caused more or less trouble. No mention is made of bees in the clipping referred to.

If any of our subscribers in Canada or the United States know the outcome of the Ontario case we shall be glad to have them write us.

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The Importance of Scattering Colonies of Bees in Fruit Orchards

IN this issue, page 145, Mr. J. E. Crane brings out a point that is worth the careful attention of every fruit-grower and beekeeper; namely, that bees in orchards do better work in pollinating the blossoms if the hives are *scattered* thruout the orchard. That has been our policy where we put out bees in this way. If the season is a little unfavorable the trees nearest the bees will show more fruit than those further removed.

Mr. Crane mentions that a prominent fruit-grower stated before the Vermont Horticultural Society that he scatters the bees all thru the orchard, "with the result that in seasons when during fruit-bloom it is cold and cloudy the three or four trees close to a hive of bees were much more fruitful than those further away." Mr. Crane draws the conclusion that "as we are apt to have a great deal of such weather in northern New England this season of the year," this is a "very important consideration."

Beekeepers will get calls for bees to be located in fruit-orchards more and more; and what is an advantage the fruit-grower is also to the advantage of the beekeeper—more pollen more brood, and more returns when the honey-flow comes on in June and July.

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Bee Inspection in Idaho

THE sum of \$3000 was appropriated by the Legislature for bee inspection in Idaho during 1915 and 1916, which is more than double the amount ever expended before for the same period. This has made it possible for the inspection to cover much neglected territory.

State Horticultural Inspector Graham, in his annual report for 1915, says that 3648 colonies were found diseased, or were kept in box hives in violation of the law, out of

30,511 colonies inspected. There were 2639 colonies treated, and 1009 were destroyed.

Mr. Graham estimates that 1,780,000 pounds of honey was produced in the state during the year, valued at about \$175,000. Probably two-thirds of the honey was shipped out of the state.

We have taken these figures from a brief review of the report in *The Idaho Statesman* for January 26.

Bran Cookies

We wish to call especial attention to one of the honey recipes in *Farmers' Bulletin* No. 653, "Honey and Its Uses in the Home," of which mention has already been made in these columns. The recipe entitled "honey bran cookies" No. 2 we have found to be exceptionally fine. Not only are these cookies of delicious flavor, but containing, as they do, the ingredients of bran and honey, they are very fine for building up bone and tissue, and also have a mildly laxative effect. We have found that the addition of one or two eggs to the recipe improves the cookies somewhat. Here it is:

Three cups bran, $\frac{1}{2}$ cup sugar, $\frac{1}{4}$ to $\frac{1}{2}$ teaspoonful soda, $\frac{1}{4}$ teaspoonful cinnamon $\frac{1}{2}$ teaspoonful ginger, $\frac{1}{2}$ cup honey, $\frac{1}{2}$ cup milk, $\frac{1}{2}$ cup butter, 2 eggs if desired. If the bran is coarse add a little flour. Mix the ingredients thoroly, and drop from spoon on to a buttered pan and bake about 15 minutes.

L. C. Root, Son-in-law of Moses Quinby, still Young at 75

MR. LYMAN C. ROOT celebrated his 75th anniversary at his home recently. Besides the numerous friends who came to call on him, many letters of congratulation came from far and wide.

Mr. Root will be better known to the readers of *GLEANINGS* when we say that he is a son-in-law of the late Moses Quinby, the author of "Mysteries of Beekeeping Explained," and also of the only reliable cure for American foul brood. After Mr. Quinby's death Mr. Root revised the work. This was in 1884. So complete and thoro was the revision that the publishers said that he "might in justice have claimed to be its author; but with rare modesty, and in a spirit of reverence to one who had devoted his life to the advancement and popularizing of bee culture, he preferred to retain the title of Quinby's 'New Beekeeping.'"

Our readers will remember that Mr. Root, in our Quinby number of last year, had an article on page 267, April 1st issue, telling something about Quinby's old home and

relating some reminiscences of his father-in-law who in the olden days, without movable-frame hives, made money from his bees, and who one year produced so much box honey that he broke down the honey market of New York. But this was away back in the early '50's.

The career of Mr. Root, the son-in-law, has been no less remarkable. In the early days he was a well-known contributor to *The American Agriculturist* and *The Country Gentleman*. While he has not done very much with bees since his removal from New York to Connecticut, he has been an active factor in civic life in the state of his adoption. He has held varied positions of honor and trust, having been recently elected member of the State Board of Trade of Connecticut, and for a number of years he was treasurer of the Stamford Board of Trade and a delegate to the State Board. He is treasurer of the Civic Federation, and an active member of the Universalist Church and of its men's forum. In politics he is a Prohibitionist; but, nevertheless, while milk inspector he served under a Democratic mayor and a Republican council.

Those who had the pleasure of hearing the address he delivered at the Jenkintown field meet, where there were nearly a thousand beekeepers present, will remember Mr. Root not only as a man of ability but one of exceedingly pleasant face that bespeaks the character of the man. Like our Mr. A. J. Root, to whom he is not related, he carries us back to the olden days when beekeeping in America, and practically in the whole world, developed from the old box hive to the modern movable combs, section honey-boxes, comb foundation, and the extractor. Both the Roots are within one year of being the same age, and in all these years they have been good friends.

The Colorado Spraying Situation, again

ONE of the prominent apple-growing districts is western Colorado. As would naturally be expected, beekeeping interests are also well represented there. Altho honey-producers ought to be on the best of terms with the fruit-growers, their interests being so closely intertwined, unfortunately peace does not always prevail. Spraying seems to be the cause of the disturbance.

Of course, there is always present, more or less, a dispute on the pros and cons of spraying while the blossoms are on the trees. This were enough to call out a quarrel had it not been that a new situation developed along with an advance in methods of orchard practice. At one time clean

cultivation of the ground under the trees was the rule; but a short time ago the orchard men began planting sweet and red clover for soil-renewal purposes.

Here the trouble began afresh. The poisonous spray dripping from the trees, and sprinkling the clovers beneath, it was claimed, was poisoning their colonies in great numbers. The red-clover cover crops would come into bloom when there was a dearth of honey from any other source. The arsenate of lead, when sprayed on the trees after the petals on the trees had fallen, would drip on to the clover-blossoms where the bees were working. From a personal canvass of the situation we were convinced the bees were killed by the spray. A complicated discussion ensued, part of this thru the columns of GLEANINGS IN BEE CULTURE, and part of it in correspondence. In the following summaries of their argument the chief parties to the discussion hit the high spots of the question.

J. G. Brown, a Colorado beekeeper, called the attention of the beekeeping public to the situation last August in an article in GLEANINGS, in which he stated that bees had been poisoned by the spray falling on red clover. Beekeepers were moving their colonies to more favorable locations.

Dr. E. F. Phillips surmised that the losses were due to European foul brood. To his statement J. A. Green replied that he had lost too many colonies to be convinced that the damage came from anything else than spray poisoning. He wrote an article in GLEANINGS on this situation several years ago.

It was the opinion of B. W. Douglas, formerly State Entomologist of Indiana, that the beekeepers in Colorado were needlessly excited. The dripping from the trees, he contended, could not poison the clover blossoms underneath when so much greater pressure is needed to force the poison into the blossoms. In the second place, only an inexperienced grower would use so much material that it would slop over on the ground.

C. P. Gillette, State Entomologist of Colorado, wrote that he knew positively that much damage had been caused by spraying during fruit bloom, but he lacked conclusive evidence that bees had been poisoned in working on the clovers. Thoro spraying, he averred, always resulted in a large amount of drip.

Neither spraying the blossoms nor spraying while the clover is in bloom is sane horticultural practice, according to Dr. H. A. Surface, of Pennsylvania. No fruit-grower, he said, should leave a cover crop

until it blooms. He agreed with Douglas that it is poor practice to use so much spray.

Dr. A. J. Cook, Horticultural Commissioner of California, was well satisfied that the sprays falling on the cover crops of red clover would and did kill bees. The whole difficulty could be eliminated, he said, by using the annual sweet clover for a cover crop that would come into bloom at a time when the trees would not be sprayed.

Our sympathies naturally go out to the beekeepers. We are convinced that bees are killed by the thousands in Colorado by the sprays that fall upon the red-clover cover crops. The fact that the colonies immediately build up as soon as they are removed from the vicinity of the orchards, and die outright when left there, is significant. See what Wesley Foster says in his department in this issue.

Shipping Bees by Express in Combless Packages versus Shipping them by Freight with Combs, Hives, and Equipment

FOR some time back we have been coming to the conclusion that sending bees by freight in car lots—hives, combs, and all—is a very expensive way of moving bees. In the first place, it is a little difficult to make a carload of bees come up to the minimum weight on which freight must be based. Those who have had experience in shipping bees know that all colonies must be light, and it is not easy to crowd in enough light colonies to make up the minimum weight.

In our several shipments from north to south, and *vice versa*, we have found that the strong colonies would not go thru nearly as well as the weaker ones. To put it in another way, a colony of moderate weight will have more bees and brood alive and in good condition on arrival at destination than a strong one. Two and a half to three pounds of bees, with double screen top and bottom, to a single brood-chamber, will ship better than four or five pounds. Of course, if one uses two-story hives he can ship more bees; but the ratio of difference will be about the same.

It has been our experience that it costs about \$1.00 per colony for freight on bees from Florida to Medina. When we add the cost of cartage at both ends of the line, the cost of crating, which amounts to \$40 or \$50, and cost of a man's transportation both ways, the cost per colony runs \$1.50 per colony. To prepare a hive of bees, screened top and bottom—hives, combs, and all—it is worth, we will say, \$4.50 includ-

ing a queen. The cost of getting that colony of bees to the North will run somewhere about \$1.50. If we add the risk that one takes, delays en route, and double time of a man on the basis of 40 cts. an hour, and his railroad transportation, the entire cost per colony runs up to nearly \$2.00. This will make the total cost about \$6.50 per colony placed in the yard.

Let us now look at the other proposition of sending bees without combs by express. If we could send bees and brood without combs or hives we could figure out the proposition a little more exactly. As this is impossible the only thing we can do is to figure the brood in the form of bees. We usually reckon that about 3 lbs. of bees, with necessary crating, will aggregate 7 lbs. On this basis 30 lbs. of bees will run about 70 lbs.

Our traffic manager, after corresponding with different railroad and express companies, has prepared a table of prices in shipping combless bees from three or four different points in the South to various points in the East. The following is the table:

Live Bees from Fitzpatrick, Ala., to				
	2 lbs.	5 lbs.	7 lbs.	10 lbs.
Cleveland	.45	.57	.66	.77
New York	.47	.60	.71	.84
Chicago	.45	.56	.63	.74
Medina, O.	.45	.57	.66	.77
From Kansas City, Mo., to				
Cleveland	.45	.56	.63	.75
New York	.47	.63	.72	.86
Chicago	.44	.51	.57	.65
Medina, O.	.45	.56	.63	.75
From Jacksonville, Fla., to				
Cleveland	.48	.63	.74	.89
New York	.47	.60	.71	.84
Chicago	.47	.67	.71	.86
Medina, O.	.48	.63	.74	.89
From Apalachicola, Fla., to				
Cleveland	.48	.63	.74	.89
New York	.48	.65	.77	.93
Chicago	.47	.60	.69	.83
Medina, O.	.48	.63	.74	.89

For example, a 3-lb. package from Fitzpatrick, Ala., which would be equivalent to 7 lbs., would run about 66 cts. to Cleveland; 71 cts. to New York; 63 cts. to Chicago; 66 cts. to Medina, and so on the prices run from 60 to 75 cts. from all the different points.

But some will argue that three pounds of bees from the South is not equal to an ordinary colony in the spring in the North. Well, suppose we make it 4 lbs. Even then the express per colony will be less than \$1.00.

Compare this figure with the freight, \$1.50 to \$2.00 per colony, and you will see that the combless package of bees by express is considerably cheaper, providing, of

course, that the shipper *guarantees* arrival in good order. There are three or four breeders in the United States who are willing to do this.

But there is still another way of looking at it. Two thousand pounds minimum of bees, combs, hives, and all by freight from Apalachicola, Fla., to Medina, Ohio, would run up to \$349.20. Two hundred and eighty-five 7-lb. packages (each containing 3 lbs. of bees) by express, aggregating 2000 lbs. would run up to \$253. To the freight shipment we must add 50 to 100 per cent more. To express shipments we add nothing. It will be seen that the figures stand largely in favor of sending by express. But this is not all. Bees sent by express will not take over two or three days from the South to the North, while by freight it will take from a week to ten days to get them thru, with a corresponding damage to brood and bees. Still again, when bees are sent by freight, unless extraordinary care is taken to water them at intervals, the unsealed brood is destroyed and sometimes sealed brood is scorched by the bees becoming too hot.

There is one more point to be considered, and it is important. When one wants to move 300 colonies he cannot very well shake off all the bees and let the brood die; and, moreover, he cannot send the bees by express unless he has a full complement of combs and hives at the other end of the route. But the average beekeeper in the North who has lost heavily by wintering can easily recuperate his losses by getting his bees by express.

Last, but not least. When full hives, combs, and brood are shipped, there is also danger of transmitting bee disease. There is very little likelihood of such danger by express.

A California Man Succeeds in Sending Bees by the Pound in Large and Small Lots; Invert-sugar Queen-cage Candy Not an Unqualified Success in Shipments

IN reference to shipping bees in pound packages, which appeared in our columns recently, Mr. J. E. Wing, of San Jose, Cal., one of the most extensive queen-breeders in the country, and who has done a large business in shipping bees successfully without combs, writes:

I have been reading the editorial on page 744, Sept. 15, and Mr. W. D. Achord's article on page 1031, Dec. 15th issue, on the pound-package business with interest, as I do quite a bit in that line myself. Out of

about 1500 pounds shipped in 1915 my loss was not one per cent, and some of the shipments were not easy ones. I sent a small shipment to New Jersey for an experiment, and they arrived with only a few bees dead. Other large lots went to Colorado, Idaho, Nevada, Oregon, Washington, Utah, Oklahoma, and all parts of California. One place in this state I consider quite a hard shipment in the middle of summer, and that is Imperial Valley. For such conditions where the weather is extremely hot I do not agree with Mr. Achord that water is not necessary. I use the Root one and two pound cage exclusively; and as the cages are very substantially made I make arrangements when sending a large order to have the empty cages returned. In this way I am able to save the buyer a little money, and also myself, and I find the cages are good for a number of trips.

I received many inquiries from British Columbia the past season for bees by the pound from people who are very anxious to buy bees that way. I shipped there during 1914 with never a single loss; but they now have a quarantine law which bars the shipping of bees in any form from the United States. Their beekeepers there are up in arms against the law, and it seems to me if they could be made to understand that disease could not be sent in with the pound packages, perhaps they would modify the law to allow bees to be shipped in without combs.

In one of your letters last summer you mentioned writing to Dr. Phillips in regard to something better for queen candy. I have had no success at all in sending queens to Australia when using candy made with invert sugar, but with short shipments it seems to be all right.

San Jose, Cal., Jan. 9.

J. E. Wing.

There are two or three points in this letter which are of more than ordinary interest. The first is that he as well as Mr. Achord has been shipping bees in pound packages successfully, and with a loss of only one per cent. What Mr. Achord, Mr. Wing, and others have done, others can do.

We show elsewhere that bees without combs can be shipped by express in pound packages for less money than colonies of shipping weight of equivalent capacity can be sent by *freight in car lots*. When we say "equivalent capacity" we figure three pounds of bees as more than equal to three pounds of bees in a colony with a little *sealed* brood. It is not practicable to ship stronger colonies than three pounds by freight, hive, combs, and all, and of course all the *unsealed* brood dies *en route* unless one is unusually successful, as we have been a time or two, by giving the bees water before they ate up their larval food.

Three pounds of fresh bees, placed on

good combs in a good hive, by May 1 will make a fair colony to start in the business. Such a colony ought to be better than 3 lbs. of bees that have suffered the rigors of winter, and possibly may die in a few days. While it is true that wintered-over bees would have brood in various stages to replace those dying, much of that brood is chilled by unfavorable weather. We have had some bad spring dwindling after May 1, and considerable after April 15. Three pounds of fresh bees by May 1 will be able to stand more extremes of weather than wintered-over bees. But suppose the 3 lbs. of bees are not the equivalent of three or four pounds wintered over. It costs anywhere from 60 cts. to \$3.00 in stores, depending on the amount and kind of stores used to bring a colony thru winter.

Understand, we are not at this point advocating that a beekeeper in the North should brimstone his bees in the fall to save the stores; but here is a condition that is not uncommon: Many wintered-over colonies that have a mere handful of bees and a queen, if given fresh bees from the South, will be in shape to gather honey by June 15 when white clover comes on in most localities. Frequently there are oceans of clover, but not the bees to gather the nectar because of a severe winter just preceding.

Mr. Wing brings out another point; namely, that invert sugar as a food for pound packages and for queen-cages does not take the place of honey. Our experience during the past year proves that he is probably right. We had more losses in transmitting our pound packages and our queens in mailing-cages during 1915 when we used invert sugar exclusively than when we used a food made of powdered sugar and *unboiled* honey. A *boiled* honey appears to be inferior to a candy made of invert sugar syrup. It would seem then that in order to make successful shipments of bees and queens long distances we shall have to secure a honey of the finest table quality from a yard where there had been no foul brood for two or three years back.

Our own and Mr. Wing's experience, contrary to that of Mr. Achord's, shows that water during very hot weather helps materially to get combless bees thru in good order.

Mr. Achord has demonstrated beyond question that the old cages for bees in half-pound, one-pound, and two-pound sizes were a little too small. We have already made arrangements to enlarge ours, and shall probably continue to use water during hot weather. It can do no harm, and may be of great assistance.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



It is predicted in European bee journals that the great war will give quite an impetus to beekeeping. Well, I'd rather see the business languish in this country than to have it flourish with that kind of impulse.

It warms one's heart to see a crusade started in the great city of Chicago to save the boys. It costs much less to stop a boy taking the first step in crime and make a good man of him than it does to wait till he is a man and then convict him of murder.

A. I. ROOT asks, p. 81, whether any of the veterans can tell who it was, years ago, that told about a wire-cloth paddle instead of a wooden paddle to knock down an angry bee. Wasn't G. M. Doolittle the guilty party?

A. I. ROOT, p. 83, tells of his "surprise" Christmas present in the way of a bunch of fluffy chicks. I too had a surprise that you'd never guess. In lieu of any other Christmas present, a very dear friend gave me his word that he'd give up entirely the use of tobacco. And I didn't give him a smoker, either.

REPLYING to your question, Mr. Editor, p. 5, I don't know the relative strength of honey and sugar—tried to get a ruling from Washington, but failed. But I've had the idea that a pound of sugar will sweeten more than a pound of honey. I think a syrup of $2\frac{1}{2}$ sugar to 1 water is *about* equal to honey (altho in some respects greatly inferior).

H. SPUEHLER, in *Schweiz. Bztg.*, 24, ventures the guess that foul brood abounds in this country because so much sugar is fed, and that giving an Italian queen help because Italians do not feed sugar. But I doubt whether sugar is fed here as much as in Europe, judging by the pages and pages in German journals occupied with denatured sugar. Then as to Italians, the queens given are not from Italy, but reared in this country, and so are in just as much danger from sugar-feeding as others.

BEER consumed in this country in 1915 amounted to 18.24 gallons per capita. That's the least in 10 years, and 2.3 gallons less than in 1914. It means an average of $\frac{2}{5}$ of a pint for every man, woman, and child for every day in the year. But some of us didn't drink our share. The per capita of spirits was 1.25 gallons, the least in 16 years, and .18 of a gallon less than in

1914. Let us hope that the pendulum will continue to swing in the same direction in 1916.

LATELY I saw the statement that there was no need to have a queen a year old before deciding whether she would be good to breed from, for we could tell before she is three months old what kind of layer she will be. That shows that prolificacy was counted the only thing needed—a view held by many. Such people should read Doolittle, p. 10. I don't see how I can estimate a queen's value until she is more than a year old.

THE United Honey-producers' Association, under the leadership of Geo. W. Williams, is quoted on page 46 as saying that some of the old fossils will "open their eyes when they wake up some of these mornings and see the United Honey-producers doing the things that they have been dreaming and talk, talk, talking about for a quarter of a century." Don't be too hard on the "old fossils," George. Some of them did a good bit more than talk—and, by the way, you're doing some talking yourself—they put up quite a lot of good money. Like enough, they would commend to you the word of Ahab to Benhadad, "Let not him that girdeth on his armor boast himself as he that putteth it off." If you will be our Moses, we'll rejoice; but please don't shy stones at any honest effort of the past, even if it didn't have the same success you will have.

"We consider a good windbreak next to packing," says ye editor, p. 56. I wonder, now—I just wonder—whether that might not be made a little stronger. After studying over it quite a bit, I feel inclined to say that a sufficient windbreak is more important than packing. Set a hive without any packing in a dead calm, with a zero temperature, and another with the best of packing, in the same temperature but with the wind blowing a gale, and I believe the unpacked hive would have the best of it. To be sure, you're not likely to have a windbreak that will make a dead calm, but it's working toward it; and a windbreak of even a few scattered trees makes more difference in the force of the wind than it generally gets credit for. [We felt just as you did; but on thinking it over we thought that, if we came out as strong as you express yourself, the public might think that we were too radical; but if we can have your company, we shall subscribe to all you say.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



I wonder if any of the readers of GLEANINGS have had any success in securing honey from the hairy vetch. It is a good forage-plant, and said to be an excellent honey-plant as well.

"Tickling the Palate of a Nation" is a mighty big job as it seems to me, page 34, Jan. 1. But tickling it with honey is certainly better than with the thousand and one artificial compounds now on the market.

I believe the complaints which E. C. Bird makes of the net-weight law, page 948, Nov. 15, are quite just. It has cost us a great many dollars to grade and stamp our honey this year, without any sufficient advantage to any one to make it pay, so far as I can see.

Dr. Miller asks, page 5, Jan. 1, why ten days is not just as well to cage a queen to cure a hive of European foul brood as two or three weeks. May be in cases where disease has just started; but I would not advise so short a time where the disease has gotten a good start.

Grace Allen is thrilled by the marvelous mechanism of the stomach of a bee. There are more wonders all about us than we dream of in our wildest moments. We can never exhaust them; and so the great loving Father would reveal himself to us thru the things he has made.

Mr. F. R. Bethun informs us, page 994, Dec. 1, that there is in Australia a great demand for honey for army contracts. Slowly but surely honey is being more and more appreciated; and before many years it will come to hold the place in dietetics that belongs to it.

That "Serious Situation in Florida" seems to me serious indeed, page 1009, Dec. 15. The Florida fruit-growers had about all the trouble before they could well stand up under. It was the last straw that broke the camel's back.

It was with pleasure that I read P. C. Chadwick's experience with the mud wasps

(page 925, Nov. 15). These wasps hereabouts seem to lay an egg on the base of the cell before filling with spiders. They prefer those same crab-spiders for their young here as in Kansas. But several years ago the supply of this kind failed; but the wasps were equal to the occasion, and filled their cells with other kinds, little and big, and their larvæ did not suffer.

That editorial, "The Economy of Honey as a Food," is just splendid, page 1010, Dec. 15. If we had more such illustrations I believe it would add immensely to the popularity of honey. The facts are that honey at present prices is about one of the cheapest energy-producing foods we have, with the exception, perhaps, of potatoes and the grains, and sugar and molasses.

I fear that the Oklahoma foul-brood law may prove something of a boomerang (page 940, Nov. 15)—it's something to do for an inspector to examine every yard of bees in a state, or for every beekeeper who sells honey, bees, or queens to go before a notary public and swear he has no disease among his bees.

Mr. Lewis L. Winship, page 1022, Dec. 15, relieves his disgust of home-made hives. But a factory-made hive in the hands of an ignoramus of a beekeeper is a sorry affair, not much better. We used to hear a good deal about making hives "fool-proof;" but I came to the conclusion some time ago that fools were poor material out of which to make beekeepers.

The index to the 43d volume of GLEANINGS is one of the best we have ever had. It doubles and trebles the value of back numbers, and gives us an amount of information on almost every subject connected with beekeeping that is surprising. When we compare this volume of over 1000 pages with those in the seventies we can readily see how fast we are moving forward.

"Do Bees Perish during Winter when Their Hives are Completely Covered with Snow for Long Periods of Time?" editorial page 3, Jan. 1. Our experience has been that bees winter at their best out of doors

under such conditions. The facts are, snow is one of the best non-conductors of heat or cold. The hive is wholly protected from the wind, and temperature is quite even. Snow is soon melted around the sides of the hive; and if a colony is fairly strong it comes thru all right.

* * *

That article taken from the *Weekly News Letter*, page 1045, Dec. 15, on sweet clover, is of great value to all interested in the growth of this plant. I am surprised how rapidly the interest in this plant is increasing. I remember well when I first sowed alsike-clover seed, probably the first sown in Vermont, forty-nine years ago this coming spring, and I hoped it might help us out when there was little white clover; and now for the last five years it has saved us from ruin. I believe the sowing of sweet clover in meadow and pasture will prove another help in the right direction.

* * *

J. H. Lovell tells us, page 1040, Dec. 15, that hawkweed was introduced into this country from Europe some fifteen or twenty years ago. May be he is right; but if so, there must have been an earlier introduction, for it has been growing in this vicinity for more than forty years. But that does not make it respectable. It is a bad weed. It not only sends out a host of tiny winged seeds to cover new territory at a distance, but sends out creeping roots to make new plants near by. I know of no way to get rid of it in rough pasture land but to lime and sow to sweet clover, a good growth of which will smother it and furnish a lot of good feed at the same time. (Oh, yes! I remember now—*salt is said to kill it.*)

* * *

There seems to be quite a mix-up of ideas between Dr. Miller and the editor on Grace Allen's question in regard to the amount of sugar syrup to take the place of a given amount of honey for winter stores, Jan. 1. Dr. Miller says, page 3, that $5/7$ of a pound of sugar in syrup will equal a pound of honey. I believe, doctor, you are mistaken. If we add $2/7$ of a pound of water to $5/7$ of a pound of sugar we shall have a syrup that is a little over $28/100$ water, while honey is only $17/100$ water; besides, the bees will consume more or less in storing the syrup in their combs and getting rid of the surplus water. I have found by experiment (weighing) that a colony will not weigh any more two weeks after being fed than the amount of sugar fed them. If fed

thin syrup they will weigh less. Whether a pound of sugar syrup of the same density as honey will go further is another question.

* * *

The death of Henri Fabre seems like the loss of a personal friend. He was one of the most fascinating writers of my acquaintance. Every beekeeper surely ought to read of his painstaking experiments. The history of his early life is as interesting as any story well can be. In one of his books he tells how he began making observations as a child. He had discovered the sun in the heavens, and he wanted to know how he could tell this fact, so he shut his eyes and opened his mouth; then he opened his eyes and shut his mouth, and knew for a certainty that he was able to recognize the sun thru his eyes. "How foolish!" we say; but it was thru just such painstaking, careful observations in later life that he gave us a mass of information about insect life that will enrich the world for all time.

* * *

On page 928, Nov. 15, E. F. Atwater gives his opinion of eight and ten frame hives and following boards. I wish every manufacturer of hives would read what he says, and take it to heart, particularly in regard to eight-frame hives and division-boards. Let me quote: "As the eight-frame hive has room for eight frames and a thin division (not over $3/8$ thick) *it is seriously faulty. That flimsy worthless follower is one of the worst nuisances ever put into a hive.*" (Italics my own.) He says further: "If propolis is at all plentiful the division-board is often broken when being removed, and sooner or later is left out entirely, and the self-spacing feature of the frames destroyed entirely."

Now, that just hits the whole subject squarely on the head. I just wish those who send out such hives had to open them as the inspector has to in the presence of the owner. I never ask who makes their hives; for if I knew I fear I should never think of them just the same again. In the hands of a large majority of beekeepers they are not a movable-comb hive at all, and they no more think of taking the frames out of their hives than they think of taking their heads off when they go to bed. Perhaps I have said enough; but the suggestion of Mr. Atwater is a good one, that, instead of eight frames and a flimsy following-board, better make all ten frame and use but nine frames and a substantial following-board that can be taken out without tearing it to pieces.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The fact that the honey crop was very short in the northern part of the state and shorter than usual in Imperial Valley may have a tendency to explain why our honey market is now well cleaned up.

It was pretty well agreed by inspectors at the "state meet" that the symptoms of all kinds of brood diseases converge until it is a very difficult matter, in many instances, to tell just what the disease may be.

Every beekeeper should send to the United States Department of Agriculture for a bulletin known as Separate 637. It gives some valuable hints on organization, and incidentally tells some very pointed things of the rural producer.

Prospects at this date, Jan. 20, may be said to be exceedingly bright for a honey crop. The late rains have soaked the soil to a considerable depth. Honey-plants are in a thriving condition. We must remember, however, that a dry spring would yet reduce our chances for a honey-flow greatly.

The "Golden" came in for a few more knocks at the State Association meeting, and also received some praise. The prevailing opinion is that golden Italians are not a mixture of races that have been blended to produce color alone, but Italians bred to produce color as well as quality.

The heaviest floods for fifty years, if we are to believe the local press, have just passed (Jan. 20), and the damage has been very heavy by washouts and washaways. A Los Angeles paper is authority for the statement that a thousand colonies of bees were washed down one canyon. This is, perhaps, overestimated; but that there were many colonies washed away by high waters there is no doubt. The government record in some localities reached the proportion of 15 inches in three days. The loss of life will figure close to a score.

At the time the World's Fair exhibit was in the hands of Mr. M. H. Mendleson, he estimated that \$20,000 would be needed to make a creditable exhibit. This was frowned upon by the association as visionary, and they lost no time in queering the

work of the exhibit committee. Now comes Prof. Lynch, who had charge of the small exhibit displayed, most of which was made possible by his own means, who says that Mr. Mendleson's estimate was under rather than over estimated. Prof. Lynch also says that Mr. Mendleson was the man of all men in the beekeeping fraternity to place an exhibit in an artistic manner.

At an early hour on the morning of Dec. 30 I was awakened by a snapping and crashing noise, and was trying to decide just what was causing this unusual disturbance, as it did not cease. I had called to my wife to learn if possible what the disturbance was all about. At that moment the telephone rang long and loud. I immediately suggested fire. My wife bounded for the phone, and I to the outer door. Snow! Well, of all the surprises this was the limit. The immense wide-spreading pepper-trees on the street in front of my home were breaking down under the weight of snow. Such a beautiful and rare sight is not often witnessed in this semi-tropical clime. The whole valley was covered with the "beautiful," while to the south the hills where my bee-ranch is located lay under a full foot of snow. It continued to fall thru the day and night at intervals, and, tho melting some all of the time, it reached a depth of five inches in this city. There was imminent danger of the most destructive frost for years on the following night. The sky was clear and all indications at eight o'clock at night were that there would be a rapid decline in temperature, augmented by the carpet of snow. But nature came to our relief, a new storm moved in from the ocean, and all was saved, for the temperature the following morning had run up to 35. I have some beautiful snow pictures which I might submit to the editors for the use of GLEANINGS, but I am timid on these matters. At the time of the great freeze in 1913 I submitted an "ice picture" to GLEANINGS, with an article describing its destruction. I was liberally criticised by California people for even daring to tell the truth. So it is easy to see why I am timid on this matter—not because it was not all so, but because the Californian is looking for tourists and investors; and any words that might keep a dollar from the state are looked upon as criminal utterances, truth or no truth.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



TAKING OFF HONEY IN MIDWINTER.

Yesterday, Jan. 21, our men went to two of our outyards to take off a load of honey. Who would think of doing such a thing in the very midst of winter? Yet we do precisely such a thing, a practice followed for several years, tried out pretty thoroly now, and without finding any ill effects as a consequence. A year ago there was not a month during which we did not take off surplus honey. The same is true of last year's crop, a good deal of which is still on the hives, while some is in storage. Orders are being filled every week, quite large ones sometimes, and we must have a supply of honey to fill them with.

While we found it a good plan to keep our supers of comb honey, just as they come from the hives, in a warm basement specially heated for the purpose, it requires a good deal of extra effort and expense in double handling and fuel. We also found that, with our comparatively mild winters, it does not do any harm, apparently, to the colonies to keep these supers for us until we need them. Of course, every effort is made earlier in the season to prevent too many supers remaining on any one colony. One or two is the usual number that we believe the colony can keep moderately warm from its cluster below, while more than this might result in the honey in the upper ones granulating sooner or later in the winter months.

When the honey supers are removed from the top of the hive on the moderately warm days in our southern winters there seems to result no actual harm to the colony. The bees usually fly on such days—in fact, are often out hustling pollen, and sometimes even nectar from the scattering sources then at hand, and the disturbance is not serious. Indeed, the writer has, upon two occasions, been along to take off some of the uppermost supers during quite cool weather when the inmates were clustered in the brood-chamber below, and seemed not to be disturbed in the least except from the jarring of the hive.

BETTER FOUL-BROOD INSPECTION.

Professor Pattock, State Entomologist, College Station, Texas, in charge of the Texas foul-brood-inspection work, has recently made an extensive trip thru south-west Texas, looking into the foul-brood situation at various points. Prof. Pattock is very enthusiastic about this work for the

beekeepers' interest, and is seeking their earnest support. This should certainly be forthcoming from every beekeeper in Texas.

The question that has arisen among a number of beekeepers that I have come in touch with lately is whether we are really operating under an efficient plan of inspection and eradication work, or whether some better plan might be adopted that would give better results. On account of the great area covered by the state it was found quite difficult indeed to carry out the plan of a single state inspector as in many other states. While this was tried out in the beginning it was soon found advantageous to have a number of deputy inspectors, at least in the greater infected districts. Then the county-inspector system of carrying on the work was adopted, and is the plan under which the work is done at the present time. The county inspectors are recommended by the state entomologist for appointment by the local or county beekeepers' association. The organization of each county where the disease may prevail, and the prompt selection of an inspector, is therefore encouraged. Even counties adjoining those where infestation exists should organize and have a local inspector to guard against any outbreak.

The doubt existing in the minds of a number of well-posted beekeepers is that of a probability of inefficient men finding their way into these positions on account of a certain "pull" or influence they may have in their home county.

Again, it has been asserted that a queen-breeder, supply-dealer, or even an extensive honey-producer, thus using his influence and getting the position as foul-brood inspector, might find it to his interest, on account of the fear that the publicity of the presence of the disease in his locality might hurt his business, to suppress the fact that it does prevail, to the detriment not only of the beekeepers in that county but the industry at large.

In other instances it has been exceedingly difficult to obtain good men for the place because those well qualified could not serve, and the work finally fell upon persons entirely unfit for the position. While there are excellent county inspectors, there have also been some very poor ones; and the question is, "How can we overcome these objections?" From those who are capable of giving proper advice on this subject I should be glad to have suggestions.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



ARE DROUTHS INCREASING?

"I note that you and Dr. Miller have been in the bee and honey business for nearly half a century, so I am led to ask, 'What of the future?' It has been very dry here for the past five years, and the secretion of nectar has been so poor that the average for those five years has not been one-fourth what it was during the five years preceding, when we had opportune rains and fair skies intermixed. Do you believe the earth is drying up?"

Profit in any productive industry centers quite largely on the cost of production; and if the crop is cut down by excessive drouth to one-fourth of the average, then the outlook would be dubious provided any great extent of the country were to suffer in that way. From my experience I have found that good honey crops come in connection with abundant rainfalls, interspersed with clear skies and high temperature, and that nectar depends on vigorous plant growth, and successful plant life on abundant moisture and heat.

Prior to 1903 we had six years with scanty precipitation, which gave poor honey yields during all of those years, as well as a scanty growth of crops, and the theme of conversation among the farmers about here was that we had cut off our forests, and ditched our land to such an extent that, whenever it rained, instead of the forests and swamps holding the water, the water entered the drains, ran off in the streams to the lakes, and from the lakes to the ocean. Thus we had killed the goose which laid the golden egg. I must confess that such theorizing sounded so good that nearly every one here in central New York believed it, even when the papers told of floods in other parts of the United States.

Up to June 12 of that year there was not an inch of rainfall in these parts. For days the sun rose and set, looking like a ball of fire, even in mid-day, on account of the haze or smoke in the atmosphere. On June 6 I had occasion to go from Syracuse to Buffalo, and saw fires, set from sparks from the railroad trains, running right out in the standing grass in the meadows, the farmers fighting these fires, trying to save the little grass that had grown. When I saw these fires burning down the alsike and white clover's stunted growth, I had anything but an optimistic view of beekeeping for the future.

But at 1:30 A. M., June 12, 1903, I was awakened by a clap of thunder, and soon the water was pouring in torrents on the roof above me. It rained from then on till noon, when the rainfall measured $3\frac{1}{2}$ inches. To make the story short, the rest of the season was more than usually wet; and as the rain came in time for both basswood and the sowing of buckwheat, we got a very fair crop of honey, even after losing everything from clover.

The next four seasons were wetter than usual in these parts, and so all talk about scant rainfall from cutting off the timber and draining the land ceased.

That the drouth, not only in the time of bloom, but perhaps months previous, has played havoc with our honey-yield is, in all probability, true; but there is water enough still, if it had an equal distribution. The cutting-away of the forests and the construction of drains may have something to do with this unequal distribution, but I doubt if any one knows just why drouth comes to a certain locality one season and not the next. Irrigation would be a remedy, but is too expensive to consider for raising honey alone. During the past summer I found that a drouth for a year or two is not always so detrimental to a good honey-yield as I had formerly supposed. Farmers about here seeded their ground as usual with alsike clover during the springs of 1912, '13, '14. During the springs of these years, in this immediate vicinity there was a drouth just at the time this seed should have sprung up, and there was great wondering why there was little or no alsike clover to grow and bloom during the summers of 1913, '14, and hence very little was sown during 1915. We beekeepers about here knew little what was in store for us until about June 15, 1915. At that time fields began to be pink with alsike bloom, and from June 20 to July 15, hundreds and hundreds of acres were just one sheet of pink alsike, so they could be seen in all directions for miles around. This, with a fair yield from basswood, gave us the largest yield of white honey known in this section since 1877. Nature is wonderful in her ways, and capable of holding seed dormant for years; and when a favorable time comes, she starts all these seeds into life. As to the question, "Do you believe the earth is drying up?" I will leave that to Dr. Miller, as he has lived and kept bees many years longer than I.

GENERAL CORRESPONDENCE

SUNDRY APHORISMS

BY J. E. CRANE

On page 992, Dec. 1, Arthur C. Miller gives us some "Sundry Aphorisms." First he tells us not to have any weak colonies, which is very good advice, particularly in autumn. However, in mid-summer it is often a very decided advantage to divide our colonies so some of them will be weak. He next tells us that bees winter well with him on aster honey, but may die on sugar-syrup stores, and gives as the reason, "Worn-out bees. Handling a lot of sugar syrup, or a lot of thin nectar late in the season (late means when clusters are contracting) puts too much labor on the bees, and ages them, and that late, particularly with old queens." Then he calls on Mr. Crane to sit up and "take notice," which I hereby do. Now, I have fed tons and tons of sugar syrup during the past thirty or forty years, and this is the first intimation that it "ages" bees seriously to feed them any winter stores they may lack "when clusters are contracting." I fail to see why it should age bees seriously to carry down five, ten, or twenty pounds of sugar syrup into their combs, which is usually completed in twenty-four hours. "Particularly with old queens;" why should it wear out bees with an old queen sooner than bees with a young queen? Our genial friend informs us that the remedy is to put in young queens about Aug. 20. Why, bless you, my good friend, the rearing of brood is nearly over by Aug. 20 in this "locality," and the young bees reared after that time would be few in number. But I suppose Mr. Miller wanted to draw me out and tell why I had so many weak colonies a year ago. I will tell; but it was not by feeding sugar syrup after the clusters were contracting, by a long way. It was this way: 1914 was a very poor season, and July 25 found my home yard with little surplus or increase, and even the hives nearly bare of honey, but a good supply of bees. I had several hundred dry combs that I wanted protected from wax-worms. I also wanted some increase. So I disregarded the old advice to keep all colonies strong, and made some 75 new colonies by dividing about the first of August, giving my new colonies young queens, and then fed both old and new colonies daily a thin sugar syrup to promote breeding, expecting to build all up

to good strength before cool weather, when they could be given their winter supply; but August proved quite too cool for such work, and I found what I did not know before, that bees will not build up on sugar syrup as well as on honey. However, it proved a financial success, altho I had to go into winter with more weak colonies than I like.

SHALL THE HIVES BE PUT IN THE ORCHARD?

Another aphorism. If you must keep bees among the fruit-growers, do not put your hives in the orchards, but only near them—say "horse-distance off." Now, I confess I don't just know what a "horse distance" is. Is it the distance you can see a horse distinctly, or hear him whinner? or is it the distance it is safe to hitch a horse from a hive of bees? The dictionary throws little light on the subject, so I conclude it is a pretty considerable way off, more or less. But even with this definition I can not quite agree with my friend, and this is why:

While attending the annual meeting of the Vermont Horticultural Society recently I learned of an extensive fruit-grower who, without any regard to the advice of our friend to set bees a "horse distance" away, has actually had the presumption to take hives of bees right into his orchard, scattering them around here and there, one in a place, with the result that in seasons when, during fruit-bloom, it was cold and cloudy, the three or four trees close to a hive of bees were much more fruitful than those further away—a very important consideration, especially as we are apt to have a great deal of such weather in northern New England at this season of the year.

And, again, he says, "If fruit-growers practice spraying while trees or cover crops are in bloom they should know what will happen. No bees will be kept near them, and all the wild bees will be killed off." Not quite so fast, my friend. While we know that spraying at times does kill bees, it also appears to be a fact that at other times it does not. Would it not be well to look into the subject carefully before we condemn *all* spraying of fruit-trees when in bloom?

Middlebury, Vt.

A CONTRACT BETWEEN FRUIT-GROWER AND BEEKEEPER

BY GEORGE H. WEST

Here is my form of contract for placing and keeping bees in an apple-orchard for pollination purposes. I think it may interest many of your readers.

This agreement, made in duplicate, and entered into this 21st day of July, A.D. 1913, by and between George H. West and Wm. H. Bartleson, both of El Paso County, Colorado, *witnesseth*,

That said West is the owner of the SE quarter of the NW quarter of Sec. 32, town 21 south, range 58 west, being 40 acres of land in Crowley County, Colorado, planted mainly to apple orchard, now in bearing, but some 10 acres being in alfalfa, and is desirous of having his fruit-blossoms properly pollinated each year; and that said Bartleson owns some 90 hives of honeybees, and desires to secure a location for them where they may have proper range for pollen and honey:

Now *this agreement* is hereby entered into by and between the said parties for their mutual benefit *to wit*: Said West agrees to lease to said Bartleson for the term of ten (10) years, unless sooner terminated, as

hereafter stated, a tract of land about 78 feet by 142 feet, located on said 40 acres, and near the southeast corner thereof, for the annual rental of one dollar (\$1.00) per year, where said Bartleson agrees to locate and keep his bees, with the privilege of erecting such buildings as he may require for his uses in said business, with the right to remove his said bees, buildings, and improvement from said tract at the termination of this lease. The number of hives of bees on said tract shall not be restricted, except there must not be at any time less than eighty (80) hives of bees during the blooming period each season. And said Bartleson agrees to the above terms, and is to move all said hives of bees to this specified tract, and is to keep them there during his lease, and to pay said rental annually.

It is further mutually agreed between the parties hereto, that if said West should sell this land, or if said Bartleson should sell all his bees, such action will terminate this lease; otherwise it may be renewed, upon the same terms, upon its expiration.

GEORGE H. WEST,
WM. H. BARTLESON.

PUZZLES; THE CURSE OF GOLDENS

BY ARTHUR C. MILLER

Bees are contrary little cusses, with apologies to Mr. Crane. They persistently prove that what we *know* we know about them isn't so.

On August 8, to a nucleus from which I had a few moments before removed the queen and all brood, I gave a frame of brood of all ages from the egg to six days sealed. That was at 11 A. M. At 4 P. M. on August 10 there were two *sealed* queen-cells on that comb. There were no queen-cells or cups on the comb when it was given. On opening those cells the grubs were found spinning their cocoons, and had them perhaps one-eighth done. Do or do not bees select grubs too old to make good queens?

Perhaps Dr. Miller can tell. To make more clear the foregoing case I will explain that the brood came from a thrifty colony with a fine young queen which had been laying less than a month, and it was given to the nucleus with the bees adhering to it. Why such proceedings on my part? Well, the queen and brood was given to a colony I was making up. And the bees were left on the brood given to the nucleus because it was easier than shaking them off, and also

I was willing to strengthen the nucleus a little, as I was to give it a cell in a few days.

Case 2. Comb of bees and brood with two unsealed queen-cells was given to a nucleus which had a virgin four days old. The queen-cells were completed, four others well under way, and the virgin very much alive, when the matter was discovered three days after the combination had been made. Failure to notice the record was the cause of the combination. What is the explanation?

Case 3. A fair colony with a fine thrifty queen four weeks in it. First two combs, at back, honey; second two, beautiful worker combs almost full of sealed drone brood, a few cells with larvæ, and some with a single egg each. Next comb about half worker and half drone brood all in worker comb. (Just there a veteran inspector said, "Drone-laying queen.") Next comb, a perfect sheet of worker brood with workers emerging. Then he changed his mind. Rest of combs, beautiful worker brood; jolly nice mess that would be for a novice to bump into and try to have explained,

wouldn't it? The new queen had been laying for a week or ten days before the laying workers started in, and they kept to the back part of the hive. (Combs are parallel to entrance.)

Some one will want to know how I treated such a case. I didn't. I just left it to the bees. As the drones hatched, the workers threw them out and the queen occupied the comb. The laying workers die or quit laying after a time, a few are still there, but the colony is booming along; so, why worry?

What is the cause of such a combination? I'll tell you in two words—"Golden Italians." The Golden bees are a curse to the industry. They are no more Italians than an Ethiopian is a Caucasian. The claim that they were developed from Italians by selection is a grievous error. I have seen them from many breeders, and had a great many strains of them myself; but I have never seen one that did not bear the birthmark of the Eastern races—not only the birthmark, but the accursed treacherous temper of the Eastern bees.

Prejudiced, am I? I used to think very well of the Cyprian bee, but I changed my mind. So completely am I weaned from any love for "Golden" bees that not only will I not have them myself, but I am trying to get rid of any trace of "yellow" blood in every yard I inspect. But true pure "leather" Italians are extinct, so far as I can find, so I am taking the best I can get, and am trying to breed out the yellow trace.

Have you noticed the increasing number of reports of cross bees and of the trouble beekeepers are having with outsiders? The trouble has been growing ever since the introduction of the Eastern bees and the cult of the "beautiful yellow queens."

Case 4 will illustrate their bad temper, and a phase of it beyond my ability to explain. An apiary of about 30 colonies of "Golden Italians," wonderfully gentle, good workers and prolific, a desirable strain from a friend of long experience, and se-

lected from a couple of hundred colonies. Six colonies were sold, two each to men who came and picked what they wanted, and the two gentlest colonies were sold to a woman. All were beginners. The original yard was six miles from the nearest lot of the sold bees, and each was about six to eight miles from each other. All queens were clipped. That was in 1909. In 1910 the bees of every single colony of that stock in each of the four yards were uglier than yellow hornets, not at one time, but all the time from spring to fall. The same was true in 1911, even tho some of the queens had been superseded. In 1912 most of the colonies had been requeened with new stock; but wherever any trace of the old blood remained, uncontrollable temper was met with. One of the colonies owned by the woman retained its ugliness thru 1913 and 1914. In August, 1914, I went into that stock and there was the original clipped queen—six years old. It seemed a shame to kill a queen of such long-lived stock and so vigorous, for the combs were full of brood; but the bees were always looking for trouble; and when they couldn't find it they made it. For three years that colony was not touched by me, and I always dreaded it, and always got an awful stinging. And, by the way, some of that queen's bees lived until May of this year.

Will some one explain why gentle stock and gentle bees of individual queens went bad and stayed bad? If it was a case of supersedure and new matings, the answer would be simple; but it was the bees of the original queens all gentle one year, all ugly forever after.

Does some one say bad handling? Well, I handled the original yard and helped on the others, and I am no spring chicken in the bee business.

Bees are contrary—ah! Mr. Crane objects to my saying "little cusses" (a "cuss" equals a "customer"), so I will use an old New England phrase and say that they are "contrary little critters."

Providence, R. I.

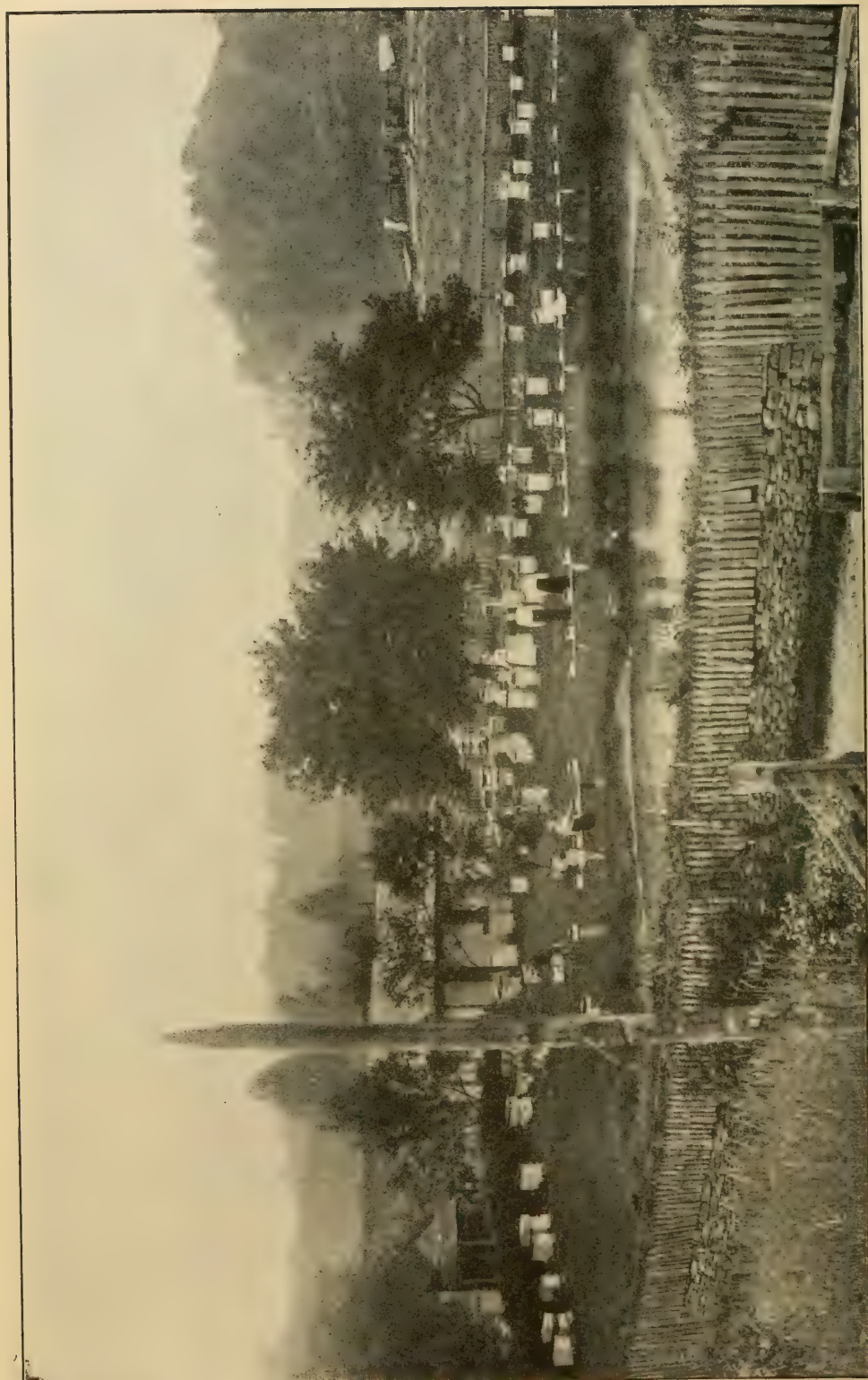
FROM FOUR TO ONE HUNDRED COLONIES

BY CURD WALKER

Seventeen years ago, about one year before I ever saw *GLEANINGS*, I bought my first bees. They were in a box hive nearly three feet long, and split open on one side. It contained a good colony of black bees, however, and later on that same spring I bought three more colonies, one in a round

gum and two in home-made patent traps in very bad condition. That year I got two swarms, but the moths killed one of them before winter.

The next year I began to get acquainted with Mr. C. H. W. Weber, of Cincinnati, who sent me my first queen-bee of the Ital-



Apiary and queen-rearing yard of Curd Walker, Jellico, Tenn.

ian stock. I lost this one, but soon got another and succeeded with it, then I got started with an outfit of five hives from Mr. J. M. Jenkins, of Wetumpka, Ala., which I got for about \$6.00 for the five eight-frame hives. They never gave me satisfaction. I made a few hives that were worse still, so I tried the Danzenbaker, a few at first, and liked them well for the production of honey, either comb or extracted, as I could use the body and one super for the queen to occupy. But for the last few years I have bought nothing but the ten-frame Langstroth, as it is the Ideal hive for my work in handling frames. I have now 100

colonies of fine Italian bees in up-to-date hives with 200 queen nuclei. I did over \$1100 worth of business in 1914, with a clear profit of over \$700.

We have seven girls and two boys in our family. We are all big honey-eaters, and we have not had to have a doctor in fifteen years. We often eat nearly 60 lbs. of honey in a month when we don't have molasses. We can give the best record of health of any family in this part of the country. I used to think I had bad lung trouble, but when I began to follow Terry it disappeared soon.

Jellico, Tenn.

PROOF THAT BEES FLY LONG DISTANCES IN CALIFORNIA

BY P. C. CHADWICK

I have scarcely recovered from my surprise after reading the editorial on page 965, Dec. 1, endorsing the article of Mr. F. M. Baldwin on the distance bees will fly in quest of stores. It is utterly impossible for me to conceive the idea that a perfectly healthy bee would not go five miles for honey if necessary, and even up to ten, on special occasions. If Mr. Baldwin's bees will not go one mile for nectar I am convinced there must be something wrong with his strain of bees. If it were really true that a bee would not go more than a mile and a half for nectar, the bee business in California would be much less profitable than at present, and in many instances could not be maintained on a paying basis. There are so many instances to my personal knowledge where from three to five miles are covered, the idea of only one and a half miles of flight being common seems utterly absurd. I have never thought for a moment that a bee is led by the sight of flora, and cannot yet believe that such is the case.

The editor has knowledge of the location of my Tremont yard, and its distance from the orange-groves, for he has stood on the edge of the canyon and looked far away to the foot-hills where it is located. The distance to the nearest orange-trees is three miles, and it is necessary for the bees to penetrate the groves to some extent to get at the nectar quickly, yet this apiary gathers annually just as much honey from the orange as do those nearly two miles closer.

A few years ago we had a very dry season, wild flora being at a low ebb, and very little chance for a bee to secure a load of nectar from any near source out in the foot-hill region. The apiary of Mr. E. D. Bullock was at that time located down in the "bad lands" district, between San Ti-

mateo and the Moreno Valley, and was a good seven miles from the orange district, yet his bees went to the orange-groves for honey.

This season at Tustin, Cal., an apiary of Mr. Geo. J. Brown was a distance of five miles from the nearest sage, and that only a fringe, it being seven miles to any sage of consequence, yet some colonies in this yard stored as much as sixty pounds of sage honey. There is absolutely no chance for any mistake in this conclusion—first, for the reason that the honey secured was undoubtedly from the sage; and, second, the fact that there was nothing at that time from which bees could secure honey out in the level valley, which is devoted to the culture of walnuts, oranges, lemons, and beans, none of which were in bloom at that time. In the case of the flight from the apiary of Mr. Bullock there was positively no chance for the bees to see the flora until several miles from their hives.

Some years ago my uncle, J. K. Williamson, had an apiary in Appleby Canyon, which is located several miles from the bluecurl fields near the city of Beaumont; yet morning after morning have I watched his bees line out for the bluecurl fields to the northeast, which is the direction of these fields from their location. This source was figured on as a great asset for the stimulating of breeding late in the fall, and while not a heavy producing source shows that even a light flow will take the bee miles to his work. To those who know Appleby at the point of the location of this apiary it will be plainly apparent that the flora could not be observed before they had traveled a distance of more than a mile, and had made an elevation of several hundred feet up out of this canyon.

The beekeeper of the East does not have the chance to observe the long distances of flight which we have here in the West, and I can look back now upon the misgivings I had years ago about where my bees were securing nectar in quantities, and point to the very source from which they were gathering, altho at that time I did not think it possible for a bee to fly the distance.

Mr. Baldwin sets some very convincing observations before us, all of which seem irrefutable; yet if such is the case with him I would surely try another strain of bees. for I cannot believe the average bee would not go two or three miles almost as quickly as one.

As to the theory of the flight of bees depending on the distance they can see the flora, I have no faith in the idea, but believe the scent of nectar has far more to do with locating of profitable fields than the sight. As a matter of fact, a bee when not loaded can fly several miles at a speed that would make an automobile exceed the speed limit if following her, and to take a little trip across country to search for nectar would hardly be classed as a laborious task. It is a well-known fact that, when one bee finds a source from which a load can be secured quickly, it is soon made known to others of the hive. The line of flight is followed by other colonies as the excitement is increased, until the entire apiary is in a wild rush for the source from which the goods are being secured. I should not be at all surprised if the crossing of the flight of other bees nearer the source has not often led to the directing of the forces of a distant apiary to the new fields. The fact that the distance a bee will fly is generally underestimated is proof that the source



This illustration shows an elm-tree which stands very near Washington's tomb at Mount Vernon. On one of the main limbs of the tree will be noticed a peculiar growth which contained a colony of bees last spring.
IRVING W. DAVIS, New Haven, Ct.

from which honey is gathered is indeed far too often misjudged.

Redlands, Cal.

[In an editorial Dec. 1, p. 965, and elsewhere in our columns for several years back, we have stated that bees as a rule in mountainous or hilly country, especially if the apiary is located on high ground overlooking a big valley, will fly much further than in territory where the ground is level, and more or less thickly wooded. This alone would explain the difference between Mr. Chadwick's observations and those of Mr. Baldwin. But it occurs to us that there are other factors to be considered. When there is absolutely no nectar which the bees can gather less than three and five miles away, it is not an uncommon thing for them to fly that far. But they do not always do

so. There are dozens and dozens of recorded instances of where bees in one yard will be on the verge of starvation when there is good bee-pasturage $1\frac{1}{2}$ miles away.

In Mr. Alexander's location at Delanson, N. Y., the bees flew five miles at times, and, on account of this, it was possible for their owner to maintain 700 colonies all in one location. Buckwheat and goldenrod, which were abundant some falls, would furnish nectar the fore part of the day, and later the bees would clean up the territory within a mile, and then apparently they would keep going further and further in making a clean-up as they went until they would reach out as far as five miles. It would be perfectly natural for them to keep going further and further as long as they could find nectar. We had a very marked case of this at our Hudson apiary two years ago.

There is still another factor to be considered. If bees can gather a liberal supply of honey within $\frac{3}{4}$ of a mile from the home

yard, and that supply keeps up, they will not go further than that. In fact, we know of instances where they would go no further than a thousand feet because there were not bees enough to clean up the range in that distance.

The conditions in and about Mr. Chadwick's home are favorable for long-distance flight, and the same is true at Delanson, N. Y., and other hilly and mountainous parts of the country, and the bees kept on further and further to get a fresh supply. A favorable breeze would carry the aroma of those orange groves right over those bees, and, of course, they would keep on till they found its source.

Whether bees have long-distance vision, probably cannot be definitely proven. Possibly they are governed more by scent, which in the bee is highly developed. If that is the case, favoring winds would have something to do with the length of the flight.—ED.]

HIGHER PRICES AND A BETTER DEMAND FOR HONEY

A Scheme to Raise Money for Advertising

BY WALTER S. POWDER

I seldom contribute to the columns of GLEANINGS, and yet I never pick up a copy without a desire to respond to some of the communications, and occasionally I cannot refrain longer and send in an article. I know that I lack talent and ability; but I can sweep, carry out ashes, and can even cook a steak to perfection. I live in the Hoosier State, where the very atmosphere has brought forth noted writers—right at the home of James Whitcomb Riley—but "Our Jim" is now down in Florida while I am here in the blizzards, and I think that has something to do with my delinquencies. My little contributions have never been snubbed or ignored by the editors; and when I send in an article I look forward to its appearance thinking that I am going to stir up a hornet's nest, and that the contributors higher up will all take off their hats and boost my article! Alas! no one pays any attention to my articles except a very few who write me direct; but none of them have asked me to step out and fight, and I guess I still have something for which to be thankful. I am content to find my name in the annual index.

Well, I have an idea that I believe will interest every beekeeper. Much has been said about boosting honey as to both the price and the demand, and I believe I have

a solution. Two or three things have stimulated my idea lately, one being how citric-fruit growers have created a demand for their goods by advertising, and the pineapple industry is following the same course. Evidently it is a success, otherwise their advertising would not continue. Did you ever watch a garbage-wagon going thru an alley? I did, and what do you think I saw? An awful lot of empty karo-cans, evidently sold by advertising; and just suppose those cans had been empty honey-cans! Would not we be a-flying? It takes money to advertise, and no feasible solution has ever been offered, but I know of one. I would have the National issue stamps, beautifully lithographed in two or more colors, gummed and perforated, and the same size of our postage stamps, or, perhaps, more like our Red Cross stamps. They could be offered by the National and associations, and publishers and supply-dealers would gladly act as agents. They would be used on the backs of letters, and thousands of beekeepers would be glad to use them, even tho they were not members of any association nor even reading a bee publication. They could be sold at any fixed price, say one dollar per hundred, or may be fifty cents per hundred. The money thus brought in could be used by a committee in judi-



David Running's home yard at Fillion, Mich., from which over 10,000 lbs. of honey was harvested last season.

cious advertising. The stamps should be beautifully engraved, and the first thing one thinks of is a clover-head with a bee. Some other flowers would engrave nicer than a clover-head, and the flower need not necessarily be a honey-producer. I would suggest a calla lily, or lily-of-the-valley, and I would have a very little reading-matter—say, for instance, “Eat Honey” at the top of the stamp, and the initials of the National at the bottom. The stamp fad is a fad

everywhere now, especially if the stamp is artistic, and I found a lot of pleasure in using a lot of Red Cross seals, and find that other people are inclined the same way. I have explicit faith in this if tried out, and it would not cost a great deal to try it. We shall not know till we try, like the man who could not distinguish his mushrooms from toadstools. “Eat them; if you live they were mushrooms; but if you die they were toadstools,” said he.

Indianapolis, Ind.

NO SWARMS EXCEPT FROM OCCASIONAL SUPERSEDURE COLONIES

BY DAVID RUNNING

Our home apiary, as shown in the illustrations, gave us last season a surplus of 9972 lbs. besides what we ate and gave away, which would make the total surplus considerably more than 10,000 lbs. We try to see that all colonies are headed with good queens in July or early August. All colonies are fed up for winter between Sept. 20 and Oct. 1, and we make sure that each colony has an abundance of stores to last until fruit-bloom the spring following. I consider this important in this northern locality.

Our bees are all wintered in the cellar, and are put in about Nov. 20, depending somewhat on weather conditions at that time. Our winter loss is usually less than one per cent. We take them out the latter part of March or early April—this, too, depending somewhat on the weather.

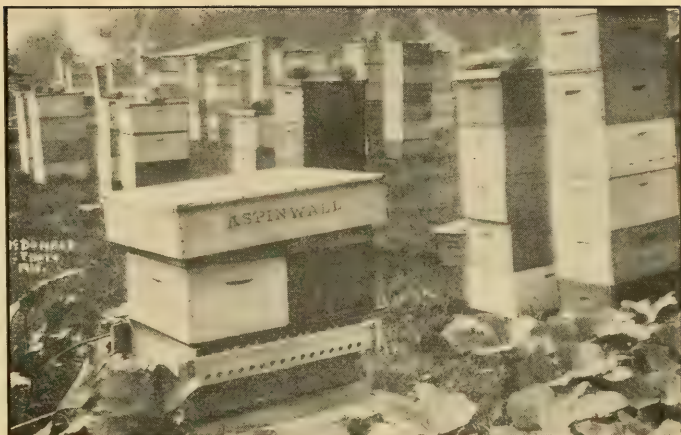
We take the hives out at night and close

all entrances down to about $\frac{3}{8}$ by 3 inches so the bees will fly slowly when the weather warms up. We do not open any hives till fruit-bloom, as we have made sure the fall previous that all colonies have plenty of stores to last until that time, and we do not want covers loosened to allow the heat to escape. During fruit-bloom all queens are clipped, and such other manipulations as are deemed necessary are attended to, such as equalizing stores, etc.

We use the eight-frame hive entirely; and as soon as more room is needed an extra body of drawn combs is given on top without queen-excluder. About a week or ten days later the queen is shaken down into the lower story, a queen-excluder put on, a super of drawn combs is added, and what was formerly the upper story is placed on top again, making the colony three stories high. At this time our clover flow

is usually on. A week later all queen-cells are cut from the upper story; the bees from the brood-nest are now shaken on either foundation or drawn combs (if on foundation one comb is placed in the center to catch pollen and eggs), queen-excluder replaced, and, if needed, another super of empty combs added; upper stories are replaced on top, and what was the brood-nest (eight combs of brood just shaken) is placed on top of the entire hive, making the colony four or five stories high.

If more supers are needed later, they are added just above the queen-excluder, but no further attention is paid to the brood-nest unless they have been marked for requeening. Our surplus is entirely from clover; and as we have a stock of about 12,000



The brood-chamber is finally placed above the supers—a part of the plan to prevent swarming.

drawn combs we do not do any extracting until the flow is over, when all honey is taken off with bee-escapes and extracted. We work six yards, and do not have any swarms excepting occasional supersedure colonies.

The one picture showing people standing among bees is a view of this same apiary



Mr. Running's apiary, taken just as the crowd was gathering for a field meeting.

taken at a field meeting before all the crowd had arrived. Notice the school in the background; also notice the dandelions in bloom in the yard, and feeders on some colonies. Altho there was an abundance of dandelion bloom last spring, the weather was so cold the bees could not work it.

Filion, Mich.

FOURTEEN DOLLARS' WORTH OF SUGAR EVERY THREE DAYS, AND RAIN BETWEEN SPELLS

BY S. H. BURTON

The season of 1915 in Southern Indiana was the worst known for several years. I have been keeping bees for seven years; and while this is not long compared to others, still I have never seen a season that was so full of promises and disappointments as the one just past. Bees came out of their winter quarters in fine shape for

the season of 1914, having been a banner honey year with us, so that the hives were full of stores to carry them thru. (These stores were principally aster; but I have never observed any bad effects from bees wintering on aster honey.)

With the opening of spring the bees bred up rapidly; and after fruit-bloom it looked

as if every hive in the yard was full of bees to overflowing, and we were going to have a case of wholesale swarming. Then it began to rain. The bees loafed, and consumed what little stores they had left, and began a hand-to-mouth existence. In two weeks brood-rearing had stopped altogether, and they were in a starving condition. By May 1 it was apparent that we would have to feed to pull the colonies thru till yellow poplar bloomed about June 1.

With the blooming of poplar the bees worked with a vim; but it seemed as if they gathered very little honey, as the continuous rains washed the nectar out or thinned it up so that it was of very little value. After poplar bloomed we then expected the bees to hold their own from white clover, which was just beginning to show on lawns and meadows. The excessive rains brought the blossoms out with a rush, and the beekeeper again smiled with the anticipation of a white-honey harvest. But tho the bees worked vigorously on the blossoms I guess they did so from force of habit, or to keep from getting the blues, as no honey could be found in the hives.

By July 1 the colonies began to dwindle rapidly; and in place of spring dwindling we had a genuine case of *summer dwindling*. Ever hear of that before? July 4 was spent at the various outyards examining colonies and deciding what was best to do under the circumstances. The cornfields were full of heartsease and bluevine, our mainstay last year at this time, and we thought conditions would surely get better soon. We made several trips to the bottom cornfields to see if we could discover any bees working on the blossoms, but failed to find a single bee, and came to the conclusion that all colonies, even the wild bees in the woods, were in as bad shape as ours. We waited a week longer, and then took a look. The bees were too weak to fly, and were clustered outside of the hives in great bunches, as if preparing to swarm. We brushed them off by the handful. They barely had strength enough to crawl. We rushed to town, and throwing a couple of 100-lb. bags of sugar in the back seat of the auto we stopped at the home yard long enough to load up what feeders were in stock, grabbed a huge granite pitcher, a



A progressive orchardist makes sure of perfect pollination. In case the weather is cold during the blossoming period it pays, and pays big, to have the colonies distributed about the orchard, especially if it is a large one. The cover picture shows a corner of this same orchard.

couple of large milk-buckets, and we were on the road to "rescue the perishing." It was apparent that the feeders would not work, or the bees, rather, as they were too weak to crawl to the feeders. What was to be done with these starving creatures in the middle of the summer, with the temperature around 60 F. to save them? We poured the syrup on the empty combs, and shook the bees on to them. This scheme worked fine, and the bees began to take up the syrup rapidly. We filled every comb in every hive, closed up the hives, and went on our way, rejoicing that we had saved our pets from starvation.

Three days later we again examined the hives, and not a drop of syrup was to be seen. This looked expensive. Could we afford it? Fourteen dollars' worth of sugar every three days, and rain between spells! We figured that every cloud has a silver lining; and if we could save the bees they surely would repay us next year. As the San Jose scale is said to be a blessing in disguise to fruit-growers, so this bee-famine is probably a blessing to the up-to-date beekeeper in that it eliminates the box hive and cleans up a lot of foul brood and weak colonies that were a menace to the beekeeping fraternity.

Fall came, and with it an early frost which ruined the prospect for a flow from goldenrod and aster. Feed we would, and feed we must, even if it cost us \$5.00 per colony. This would be cheap for good strong colonies next spring. We began a systematic gathering-in to the home yard of every colony scattered throughout our numerous outyards for the convenience of preparing them for winter. Weak colonies were given special attention; and if large enough to fill a quart measure they were

not united; but every comb was filled with extracted honey or good thick sugar syrup; and they were packed away snugly for winter. I do not believe it pays to unite weak colonies in the fall, as it is but a short time till the colony united is no larger or stronger than it was before you added the other colony to it.

The law of the survival of the fittest was amply exemplified during the past season. A few colonies seemed determined to live and sting, and gather *some* stores in spite of adversity. Occasionally in our examinations we would find a colony with its accustomed vigor and a slight amount of stores, and even some brood when things seemed to be going backward rapidly in most of the hives. Most assuredly these colonies were marked, and in the future we shall breed from them in preference to the colonies that were too weak to take the feed offered it. We have also learned that the goldens are absolutely worthless in a season like the past; and we pinched the head of every golden in our yards when we were feeding and preparing for winter. We have learned that a cross between the Italian and gray Caucasian makes a hustler worth tying to. We divided a colony of Caucasians early in June, putting in some brood from the parent hive with a few combs of Italian for a start. This hive was placed in an all-Italian yard where the virgin would be sure to cross with an Italian drone. This hybrid queen bred up very rapidly, and at the close this colony had more stores and bees than any other colony in the yard.

We have a storehouse full of empty sections, plenty of foundation, supers, and empty hives, eating southern extracted honey, and have abundant hopes for the future.

Washington, Ind.

COMBS OF HONEY IN A PACKED SUPER

BY L. S. EDISON

In the illustration on next page a novel and effectual scheme for wintering is pictured. It is adapted to double-walled or single-walled hives where a telescope cover is used. A regular super for five-inch-high sections is best.

The inner boxes or trays are made of thin boards from orange-boxes with $\frac{3}{8}$ -inch ends, and filled with ground cork. They fit flush with the top of the super. Between

them will be seen two section-holders and two shallow frames. They contain unfinished sections and combs of honey which insure the colony plenty of stores and room for the first light flow from flowers and fruit bloom. In the eight-frame super the space admits only one section-holder and two frames.

Over this is placed a super cover with screen tacked on the escape space, and then

half a dozen thicknesses of burlap as wide as the super, and long enough to reach well over the ends. This makes a cheap and very warm as well as ventilated winter ease.

It takes care of the unsalable honey, and gives the bees No. 1 stores. Their natural home in the rotten, lined, hollow tree could serve them no better.

Des Moines, Ia.

SOME NEW EXPERIENCES IN BEEKEEPING

BY GARDNER B. WILLIS

Two years ago I had a colony that had two queens in October. I saw both at the same time, and all was quiet and peaceful in the hive. I left the bees alone for them to choose the queen they wished to keep.

MOTH LARVÆ.

Last summer, in a nucleus I observed some young bees still in the cells, and alive after their heads had come thru. The next day they were still there. I took a tooth-

pick and removed one, when, to my surprise, a small white worm came from its abdomen. About eighteen were like this, either a small white worm about half an inch long in the abdomen, or in the bottom of the cell. I removed all the bees in the cells that were like this, and have seen nothing like it since.*

DRONES IN WINTER.

I have a hive in my back yard that has at least 75 drones in it. One warm day early in December I observed drones going and coming from this hive. My first thought was that the hive was queenless. I unpacked it and looked it all thru, but there was the queen with one wing that I clipped last summer. I know the colony is all right, altho it has all these drones.

The only way I can account for this, and yet I don't see how it can mean anything, is that I took these frames and bees from a fourteen-frame hive used for queen-rearing, and this was done before the frost came. There has been no excluder or separator in the hive since the change was made. But there were the drones and the queen, and a good strong colony of bees with plenty of stores.

SMOKE METHOD OF INTRODUCING.

Much has been written about introducing queens. The smoke method has been hit often and hard; but from my experience it has seldom if ever failed. I starve the queen for half an hour, and then introduce by the method advocated by Arthur C. Miller.

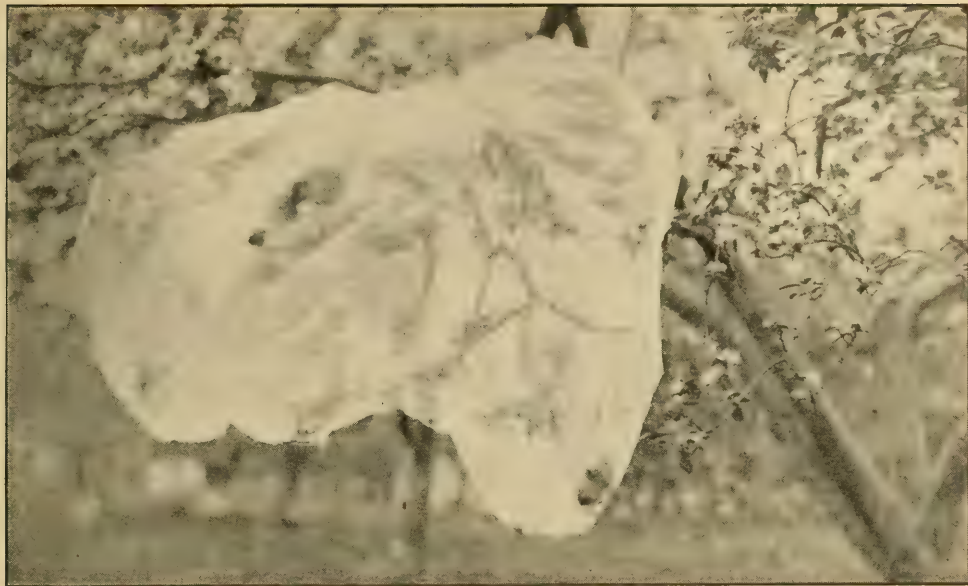
One day last summer I found a black queen in one of my queen-rearing hives in the backyard. The bees had balled her; and when I came to the rescue, there she was, a black queen. Where she came from I did not know. On the other side of the division zinc was the queen that belonged to the hive.

Another experience I must mention. I introduced a queen; and, looking at the nucleus two days later from which she was taken, there she was, where she was before, and laying. The hive to which she had



Unfinished sections for extra winter stores in a packed super.

* We have seen the same thing. Probably not the wax worm, but the larvæ of some fly.—ED.



A branch of a Northern Spy apple-tree covered with mosquito-bar during the blossoming period to keep the bees away. There were 876 blossoms on this one branch. The rest of the tree bore a normal crop. There were just five apples on this branch, and three of these dropped before becoming ripe. The bees are necessary for pollination of the blossoms.

been introduced was opened soon after, and no queen could be found. It is reasonable to suppose that she came out, or was dragged out, and found her way back to her nucleus.

There is a man out in the country who has several box hives of blacks. He sells prime swarms to me for 50 cents apiece.

I furnish hives and frames. He hives them. He is well satisfied, and so am I. The blacks are requeened with Italians. He says there is more money selling prime swarms than raising honey. He says the box hives are good enough for him, and less trouble.

Providence, R. I.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sights Among the Bees

BY H. H. ROOT

The experiment of covering a branch of a fruit-tree with mosquito-bar while it is in blossom in order to show the loss in fruit by keeping bees and other insects away during the blossoming period is not new. Experiment stations and individuals have before proved the value of the bees in this way. A couple of years ago a similar experiment (?) was tried with rather astounding results. One of the suburban magazines under "Practical Hints" gravely published an illustrated article from a contributor who said that he had found that draping his young fruit-trees with mosquito-bar during blossoming-time kept the bugs from *biting the blossoms* and otherwise destroying them! This writer was evidently so blinded by the anticipated vision of the al-

mighty dollar or two that he would receive for his contribution that he did not notice that what he wrote was fiction rather than fact. We wrote the publishers a letter of explanation, and they published our letter in full without comment, no doubt being too full for utterance. The picture which they had printed was very much like the one shown herewith except that the tree was smaller, and all of it was tied up with the mosquito-bar.

Last spring, simply for our own satisfaction, we covered one of the branches of a Northern Spy apple-tree with a bee-tent, tying strings closely around the branch so as to make a sort of bag, enclosing the whole branch. This was just before the blossoms had fully opened. Just before tying on the

mosquito-bar we counted the blossoms on the limb and found that there were just 876.

The branch was left covered until all of the blossoms had fallen. All the other branches on the tree, as might be expected in case of a Northern Spy tree, bore a good crop. When we removed the mosquito-bar we counted the apples on this one branch, but it did not take as long as it did to count the blossoms, for there were just five. Later on, three of these fell off before they became ripe. From the 876 blossoms, therefore, we secured but two good apples.

The wind plays a part in distributing the pollen and fertilizing the blossoms, and no doubt the circulation of air within the bag was not quite as brisk as that outside, and yet grains of pollen are almost microscopic in size; and if the wind had a very important part in the pollenization of blossoms it surely seems more than five of these should have set fruit, for the open-mesh mosquito-bar would not amount to much of an obstruction to the passage of the pollen, espe-

cially since the tree in question was on the southwest corner of the orchard, and the covered branch on the south side of the tree.

It seems to us that no one should question the value of bees and other insects in pollenizing fruit-blossoms. Since there are usually ten or more bees to one other kind of insect, may we not claim that the bees are largely responsible for the distribution of the pollen?

If there are enough bees in the locality, each orchard need not necessarily have bees; and yet, if the weather happens to be cold during the blossoming period, the bees will not go as far from their hive as usual, and consequently the pollenization is not complete by any means. The largest fruit-growers are well aware of this, as evidenced by the determined effort on their part to get the bees. No beekeeper need pay rent for a location if there are progressive orchardists in his vicinity who know the value of the bees.

WINTERING OVER EMPTY COMBS

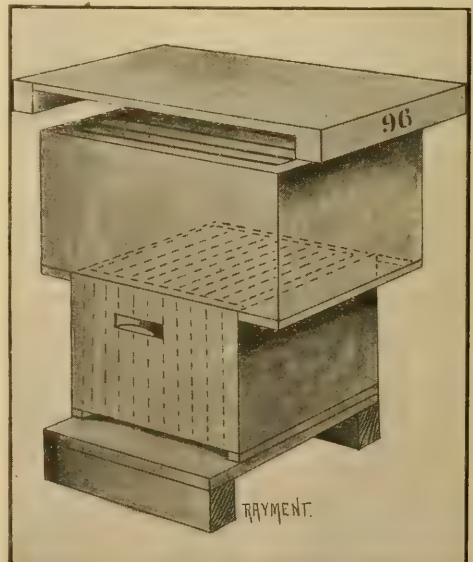
BY T. RAYMENT

This practice is not at all uncommon in Australia, where some of the largest honey-producers consider that the proper place for combs at all times of the year is on the hives. Of course, one is constrained to admit that the rigorous winters of the northern states of America are not encountered in the great sunny commonwealth, tho the climatic changes experienced in Australia are probably just as detrimental to life—that of insects in particular. The thin-blooded creatures of the tropics painfully endure a degree of cold that would be quite unnoticed by the inhabitants of the colder zones.

In those seasons when a severe winter threatens, it is no great stunt to forecast such a contingency in North Gippsland, Victoria. It is better to remove all surplus honeycombs from the hive. This procedure is not primarily to reduce the size of the hive, but to obviate any subsequent food trouble due to the honey absorbing excessive moisture from the atmosphere. Generally, however, it is quite safe to place a body of *empty* combs under a well-stored brood-nest.

The writer has in mind a certain autumn when the wax-moths were exceptionally troublesome; and to minimize labor two supers of dry combs were placed under each brood-nest, without any apparent det-

riment to the welfare of the bees. To illustrate the conditions that exist in hives so treated, let us take, for analogy, an ordinary living-room. As the temperature outside drops down with the advance of evening, if we successively rise to higher levels



Super larger than the brood-chamber, and with combs crosswise of those below.

inside the room we should be able to maintain an equable warmth without much difficulty, since the warmest portion of the room is next to the ceiling.

Empty combs under the brood-nest may be left for winter in sunny Australia with perfect impunity. That the same scheme will be uniformly successful in the United States with a greater diversity of weather is debatable. In a recent issue of the *American Bee Journal* I dealt with the eight-frame hive and empty combs from a standpoint not altogether disassociated from the above subject. In the same issue Samuel Cox states, "It is almost impossible to do successful beekeeping with eight-frame hives." Gosh! Samuel, you're an intrepid man to father such a sweeping statement. Your humble servant harvested an average of 360 pounds of extracted honey per eight-frame hive in 1912 in an apiary of 150 colonies. Now I want to ask you, Mr. Editor, how much, over and above that amount, would ten-frames have yielded? But perhaps you had better look up the *American*

Bee Journal to absorb my ideas of what constitutes an eight-frame hive. No, Mr. Cox, a man who can make a success of apiculture with ten frames can repeat the trick with eight, twelve, or fourteen, divisible or reversible, Long Idea, or any other pattern.

However, I appear to have got on to a side line. What I wanted to do was to direct attention to the method of amalgamating, if it is permissible so to describe it—two sizes of bodies into one whole. Mr. E. Garrett, one of the pioneer apiarists of Australia, and a neighbor of mine, uses a super considerably larger than the brood-chamber. In the drawing I have endeavored to illustrate his method of adaptation, which may be used with any odd-sized bodies. It will be noticed that the scheme permits the combs of the super to cross those of the brood-nest at right angles, which is quite a desideratum. The "overhang" of the super is closed underneath by two slats, 3 x 20 x 1/2 inch.

Briagalong, Victoria, Australia.

BEE CULTURE IN LOUISIANA; SOME OF THE HONEY SOURCES

BY J. F. ARCHDEKIN

The honey-flow in this section is divided into three distinct periods. These overlap or merge into each other, so that there is no stop in the flow after it begins in the spring. The bees always have some flowers available to work on. In the following I will mention only the main honey sources, and make no mention of many others.

The spring crop is secured from willow, tupelo, and white clover. Willow is a good yielder, and the bees gather a considerable amount of nectar from it. Where I came from (Missouri) willow yielded only pollen so far as I could see, and I was, therefore, surprised at the amount of honey stored from it here. Tupelo opens a day or two after willow, and a little later white clover comes on. Tupelo is the main source, however, as it is more abundant than the other two. The honey is classed as tupelo, and is white in color, heavy in body, and of fine flavor. It is hard to find words to describe the intensity of this flow. It comes in a veritable flood, and the bees work with might and main. They start out at the first streak of dawn and remain afield until long after sunset. The flow is of short duration, and they seem to realize that the time in which to fill their hives is limited.

The summer flow begins at the close of the tupelo, and continues in a long slow flow all summer. This is gathered from numerous flowers, only a few of which I can name. It is sufficient to say that practically all the honey-plants common to the central states are found here in addition to a world of others. There is a profusion of bloom all thru the season. Cotton is the main field crop, but I have never seen a bee on a cotton-blossom. It is very strange, too, as I understand it is a good source in most sections. This summer honey is red in color, and of very poor quality. The flavor is rank, with a distinctly sour twang. Strange to say, this honey fermented in the comb both before and after it was sealed. As it was stored very slowly I don't understand what caused it to sour, especially in view of the fact that the weather was dry all summer.

Goldenrod, horsemint, and boneset are the mainstays of the fall flow, which is in full swing by September 10. Asters and smartweed are also abundant. This flow is as heavy as the spring flow, and a good crop is secured besides putting the colonies in shape for winter. It lasts about a month. This fall honey is a light amber, of good

body and excellent flavor. It is a most excellent table honey. After the close of the fall flow the bees continue to gather pollen all winter on days when it is warm enough to fly.

Bordlonville, La.

THE ADVANCEMENT OF APICULTURE IN GREECE

BY H. H. ROOT



John G. Poppageorge, of Athens, Greece, who is going to introduce American methods of beekeeping into his own country.

During the course of a year many visitors find their way to the Home of the Honeybees, some of them from countries far distant. During this last season we had visitors from at least four different foreign countries. One of these, Mr. Herbert J. Rumsey, of Dundass, New South Wales, Australia, contributed the beautiful picture shown on our cover of the Nov. 15th issue as mentioned editorially.

Another visitor, also a very interesting one, was Mr. John G. Poppageorge, from Athens, Greece. Mr. Poppageorge has spent some time in the United States, is thoroly familiar with American ways and speaks English most fluently. On his trip to this country last summer he was twice arrested and held on suspicion of being a spy, but was finally able to prove his innocence by the papers he had in his possession. On reaching this country he spent some time visiting some of the larger honey-producers and he expects ultimately to go back to his own country and to interest his government in promoting an apicultural department.

On the day that Mr. Poppageorge reached Medina it so happened that quite a large number of summer-school students from Wooster, Ohio, came up to study bees for a few hours. Our friend from Greece was an interested onlooker. The illustration below shows the group in our apiary with Mr. Poppageorge helping to demonstrate bees to those less familiar with them and their habits.



Summer-school students from Wooster University having a field meeting of their own at the "Home of the Honeybees."

EUROPEAN AND AMERICAN FOUL BROOD

Their Differences, History, and Methods of Treatment

BY OREL L. HERSHISER

Continued from page 57, Jan. 15.

Some of the conditions under which European foul brood will abate or disappear of itself are now known to be, 1, a vigorous, prolific queen; 2, a strong colony of resistant bees; 3, a good and prolonged honey-flow like that from white clover or buckwheat. In a good honey-flow the larvæ are fed on nectar and pollen fresh from the flowers, and uncontaminated with infection, and a constantly and rapidly increasing number of them will reach maturity in health.

When these conditions obtain, European foul brood may be treated as follows with even much less loss of time of our queens than by any of the methods described in the preceding articles.

Given a colony of normal strength, mildly diseased. Remove from the hive all brood-combs except the one having the most sealed brood and the fewest diseased larvæ. Place this comb next to one of the side walls of the hive. Brush the bees into the hive, being sure the queen is there also. Next to the comb of brood place a frame of foundation; and if it is an exceptionally strong colony, use two of them, and fill up the remaining room in the hive with drawn comb, either old or new. In fact, all the hive may be filled with foundation except the single frame of brood, except that it is often more economical to use the combs we already have.

The object is to discourage the queen from laying for a day or two while the foundation next to the frame of brood is being drawn out. There are but few cells in the comb of brood, where the queen will naturally commence to lay, where in to deposit eggs. This colony has been made abnormally strong compared with the amount of unsealed brood. It can easily clean out the few diseased larvæ, and all new larvæ being fed with uncontaminated nectar and pollen will be able to keep the diseased larvæ cleaned out from this time on, and a cure will usually result. If the queen skips over and lays in the drawn comb before the foundation is drawn out, a cure will also usually result. This circumstance indicates an unusually strong colony that is the better able to resist the disease.

In this treatment the queen is retarded—not stopped—in laying for only a day or two, and the loss in the production of bees for the honey-flow that may follow is re-

duced to the minimum. Also there will be no "swarming out" as so often occurs where the shaking or brushing treatment is employed unless troublesome pains are taken to prevent it. We have cured the colony by simply aiding the bees in doing that which they could almost accomplish without aid.

If the colony is badly diseased, but strong, remove all combs and substitute one of mostly sealed brood containing little or no disease and complete the treatment as above described. In a strong colony, not badly diseased, this treatment may be varied by placing the bees and queen on clean combs, or part combs and part foundation, in the lower story and the brood above, and separated from the queen by an excluder.

To produce the maximum crop of honey we need to keep the queen depositing eggs as rapidly as possible in anticipation of the harvest. The great value of this method of treatment, therefore, clearly appears.

WHAT TO DO WITH THE DISEASED BROOD.

Some have stacked it up over another diseased colony for the healthy brood to mature, keeping the queen confined to her brood-chamber by an excluder. This, the writer considers, is bad practice, for the reason that, after the healthy brood has matured above the excluder, there usually would still remain the diseased brood in the chamber below to treat, thus carrying the disease along. In exceptional cases this colony, during a good honey-flow, if of resistant stock, might cure itself because of its having been made abnormally strong. A better way, however, is to take a nucleus consisting of the queen and two or three frames of brood and bees from a strong healthy colony, and this because such a colony is probably highly resistant. Shake the bees from the remaining frames of brood into their own hive and divide this brood among the healthy colonies. Here we have a goodly queenless colony to which may be given the diseased brood, and which may be stacked up four or five stories high if we are careful to leave sufficient bees on each comb to care for it. Make as many such hospital colonies, if we may so call them, as may be necessary to use up all the diseased brood that may be found in the apiary. On the ninth day after so collecting the brood, go thru these colonies and de-

stroy all queen-cells, and at the same time give a ripe queen-cell, or introduce a virgin queen from the best available Italian breeding stock, keeping her confined to the lower story by an excluder. This will usually result in a fine colony, free from disease, no loss of combs, and, if favored with a good honey-flow, a good crop of clean honey.

It is apparent that this method disposes of all the infection to be found in the apiary at the first treatment, which is very important, and it is also economical of time. It also gives us the best use of all our bees, and these strong hospital colonies will store honey in a manner not excelled by the best of the other colonies.

THE VALUE OF RESISTANT STOCK.

It is a well-established fact that certain vigorous strains of Italian bees are the most resistant to European foul brood, and yield more readily to treatment of the disease, than other strains. And it is not too much to say that good resistant Italian stock contributes more to successful treatment than any other single factor. The first step, therefore, that should be taken for its prevention or treatment is to requeen with a resistant strain of Italian bees, if they are not already of that race. It is seldom that the native black bees or their hybrids will successfully resist the disease or attain a permanent cure. With resistant Italian bees the problem is comparatively easy.

When inspecting and treating the first of my apiaries to be attacked by European foul brood I noticed that three or four unusually strong and otherwise excellent colonies of Italian stock never showed any

trace of the disease. The queen of the best of these was used as a breeder; and every hive in the apiary, except these three or four, was requeened with queens reared from this breeder. The next season all the queens of the previous season's breeding were removed, and requeening was done with queens reared from the same breeder. A part of the apiary was requeened in the same manner the third season, and would have all been so requeened had not the breeder been suddenly superseded. The object of this line breeding was to fix the resistant qualities so that in future breeding there would be a fairly good prospect of their being transmitted and a strain of Italian bees established that could be depended upon to put up a good resistance to the disease.

Subsequent results proved the wisdom of breeding with European-foul-brood resistance as the object sought. Resistance is not obtained at the expense of other desirable qualities, as it apparently goes hand in hand with vigor, good wintering, and good honey-gathering characteristics. This particular breeder was doing service for the third year when she was superseded, and possibly for a year or two before I had occasion to select her, which adds the further quality of vitality to the stock selected.

Kenmore, N. Y.

[This is the third of a series of four articles by Mr. Hershiser on the history and treatment of foul brood. In the fourth and last article, which will appear in the March 15th issue, he will complete and summarize his discussion of methods of treatment.—ED.]

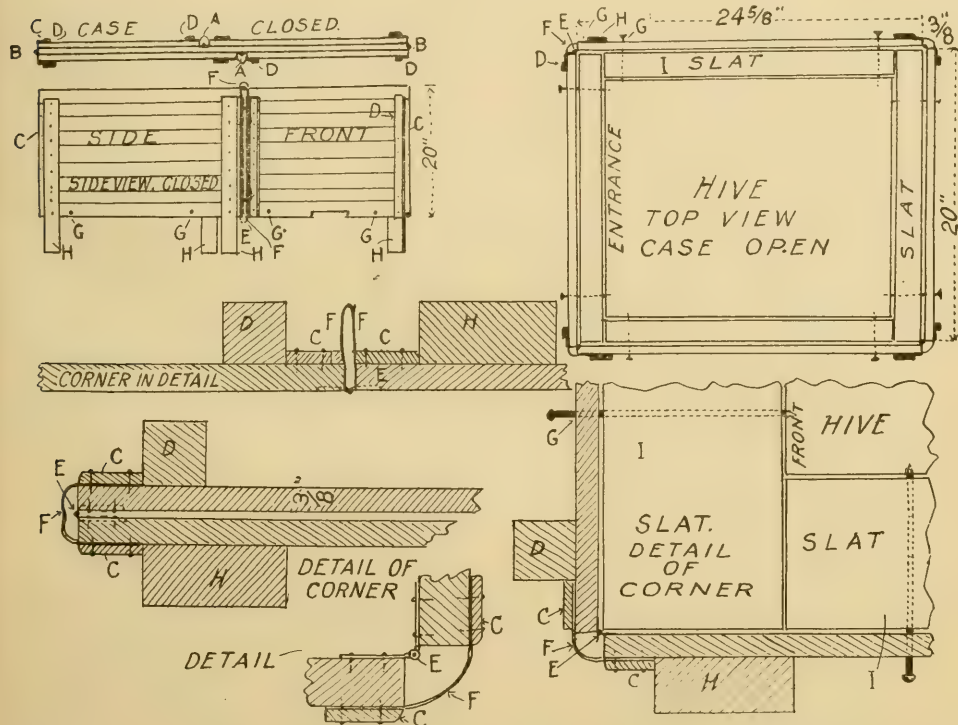


"Backlot Buzzer" apiary, owned by Dr. C. Elton Blanchard, Youngstown, Ohio. Six of the colonies were made from two-pound packages of bees. Each was put on empty combs and foundation, with a queen about May 1. The doctor considers his hobby a paying one, as a good crop of comb honey was secured.

BY J. H. FISBECK

The special features that characterize the case are, the rapidity in which it can be put on and removed from the hive, and the

and clean method of removing the side packing in the spring, especially for one having bees on a nice lawn. It is this also that makes a nice fit to a hive on uneven ground, and the possibility of applying it to an odd-sized hive, *i. e.*, driving a long thin finishing-nail with one light tap thru the holes in the case into the hive. Have the nails long enough so as to be able to adjust the case to fit the slats after the nails are driven in. Next place these removable slats on the nails, which should be level. Pour in shavings till they reach the top of the hive. Shavings above the hive should be in the form of a cushion to



Another valuable feature is the simple

I tack tar paper over the boards on the outside, between the legs or cleats, with tins and tacks. The cover is made of $\frac{3}{8}$ -inch boards cleated around the edge and covered with a sheet of rubberoid.

St. Louis, Mo.

CAPPING AND COMB-MELTERS UP TO DATE

BY H. BARTLETT-MILLER

For large yards capping-melters have undoubtedly come to stay. Up to now the ultimate design has been undecided, obviously, because too many are designing by experience alone instead of experience and theory. True, experience has shown us a few of the essentials regarding the labor side of their construction; but the effective side, both as to the capacity of the machines and the effect upon the honey, are matters which, tho fully recognized as not fully satisfactory, are (or were) largely unsettled.

The designing, making, testing, and the discarding of honey-melters of various and successive designs, has, for nine years past, been a hobby with me. Root's double-walled can melter, with the screens, was too readily blocked up, and the honey on the flat bottom was too long detained in contact with the heat. No successful capping-melter can have any flat surface. Lots of others have this grave fault.

The next obstacle is a multiplication of small tubes. This was the objection laid by the editor of GLEANINGS against Mr. Beuhne's melter, viz., that continued expansion and contraction would cause the tubes to leak at their joints. Let me add that I want a melter that the ordinary beekeeper can make with his own soldering-iron; and altho he may manage a few big tubes he cannot and will not fuss around with small tubes, such as Severin's $1\frac{1}{4}$ -inch square tubes are; and if the bee-supply firms should turn them out they would be very expensive, and also unnecessary. Melters with a wide flat bottom are also out of the race for perfection, as the iron surface buckles; and while the wax and honey flow to the gutter all right, they flow in a few defined streams according to the amount of buckling of the metal, and the rest of such buckled surface is wasting heat only to annoy the operator. The one I illustrated a few years ago also was faulty, because it had to be cleaned out at the bottom of the gutters about every four hours. I want a melter that will go on like the sands of time if need be.

The greatest fault I have to find with the most promising of the melters so far illustrated is the lack of melting surface for the amount of fuel used. Another serious fault is that all of them have places at which the flow of honey to the exit is delayed for a longer or shorter space of time. The ideal melter must allow the wax and honey without the slumgum to flow uninterruptedly

and swiftly away from the heat which melted it; and furthermore—and this is important—the whole weight of the wax and honey should be used to press the contents of the melter on to as large a surface as is possible to be made available; therefore no inside-heated surface should be upright.

And now let us see. We will take Severin's melter described on page 724, 1911. This has been much lauded, both in New Zealand and in the United States. Mr. Severin has sent out a description of another melter since then which he thinks (I don't) is a great improvement on his 1911 melter. That melter had eleven tubes $1\frac{1}{4}$ inches square and $16\frac{1}{2}$ inches long. Thus the actual melting surface was $2\frac{1}{2} \times 11 \times 16\frac{1}{2}$ inches, or a total of 454 square inches—far too little surface for the capacity of a melter $18\frac{3}{4}$ inches long and $16\frac{1}{2}$ wide and 8 deep. Then it had the fatal fault that all the wax and honey which passed the tubes fell on a flat surface; and everybody who has used a melter knows that the oxidizing of slumgum in contact with heat, such as the slumgum which stuck to the under surface below the tubes must have met with, is the cause of the darkening of the honey. Such a melter ought to have been scraped continually down beneath the tubes—an impossible job when extracting. Then the fact that the slumgum is not quickly removed from both wax and honey is in itself a damning fact in any melter.

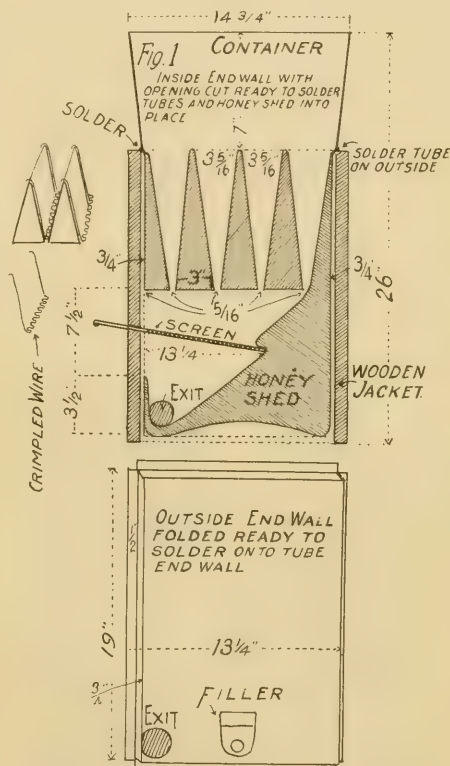
Now criticising (as I hope all will criticise mine) Mr. Severin's new melter described on p. 15, 1915, the fact of its having those 221 (whewation!) tubes in it, puts it out of court at once; for the man who requires an inexpensive affair, and having only half-inch tubes precludes its being a great success in melting constantly old brood-combs. True, melters were originally made for cappings; but when we want to get honey out of old combs that for various reasons have to be disposed of, you can just bet that the capping-melter will have to do the job. Anyway, it ought to be built to do both. Again, all the slumgum of Severin's new melter falls thru the tubes on to a flat surface. To be practical it should all fall upon a screen, to be withdrawn on occasion, and dumped into the wax-boiler, and the honey and wax should run right down a sloping surface to a gutter.

My melter was designed to melt up, if necessary, every surplus comb in an apiary of 200 colonies, such combs being sometimes

filled with a dense honey which the four-frame hand-power machine will not extract at any speed. The amount of slumgum can be imagined, and also the needed capacity of the melter to do an effective day's work. I tested the previous melter whose details were, to all intents, the same as the one about to be described, in the presence of the government apiaries inspector, Mr. S. V. Westbrooke. We placed five quarts of hot water, not boiling, in the melter; lighted and pumped up one No. 5 Prince's kerosene-stove to work the melter. Then we cut out of their frames 20 Langstroth combs filled solid with partly candied honey, wires and all. This was in mid-winter, when the honey was all but frozen. In the space of twenty minutes from lighting the stove the melter was empty. The inspector had held intermittently a thermometer so that the steam from the melter fell on the bulb, and in no case did the temperature go over 146 degrees until the last few ounces were running away from the melter and the water boiling at a terrific rate, which accounted for the heat rising to 165 degrees. This was for a few seconds only, before we put the stove out, the trial having been a complete vindication of the perfection of the melter to handle solid combs, let alone capings. That melter differed from the one about to be described only in having a central tube that, sloping each way, necessitated a gutter on each side, and a cross-gutter at the end to connect them. This cross-gutter used, upon occasions of a great rush of material, to block up, as it was not water-jacketed, and the present melter also permits of the screen for holding the slumgum, the previous one sending everything into the separator.

Before I describe the melter I want to impress upon beekeepers a few facts about latent heat. I find not a few melters whose many tubes are filled with water which has no possibility of coming in contact with the heating surface of the lamp. This is a great error. Steam contains 962 times the latent heat that boiling water does. That is to say, that, given a certain amount of boiling water applied to a surface, it would melt only one 962d part as much honey or wax as that same amount of water connected with steam would melt; so that all heating surfaces in a melter should be surface-heated with live steam, and not merely boiling water. Furthermore, the deeper the tube the cooler the lower portion of that tube as compared with the top. Now, if we employ a tube of small size the boiling steam melts the honey first which is at the top of the tube. This honey flows down

the small diameter on to the (usually) flat but somewhat cooler surface below the tubes, and there meets no other cooler wax to which to give any surplus heat over its own melting-point, which, it is more than likely, it absorbed from the tube—i. e., supposing the tube, of course, to be filled with live steam and not merely just of boiling water. Therefore the deeper our tube the less damage from honey being too long heated; and the more efficacious our melter from honey which can hardly avoid becoming super-heated at the top of the tubes giving off its surplus heat to that almost



Cross-section and plan view of Bartlett-Miller's capping-melter.

but not quite melted wax lying nearer the bottom of the tube. This is a scientific principle which, once only a theory with me, I have proved to be fact by methods which it is out of place at this juncture to explain. Suffice to explain that, the deeper our tubes, the more effective, and the less dangerous our melter will be up to a certain point; for we must not have our tubes too deep for practical work or we should never get enough honey into the melter to cover them.

I wanted a melter that the ordinary practical bee-man could, if necessary, make

at home. I also wanted one that the bee-supply firms would sell at a figure more reasonable than, say, Mr. Beuhne's machine sells at; lastly, one which had not the bug-bear of a large number of small tubes to run up cost and trouble.

THE NEW MELTER.*

My melter is 24 inches long (could be any length). Fig. 1 is a cross-section view of the end of the melter. The inside end of the melter should be cut out with the snips ready for the ends of the tubes to be soldered in. Let the ends project inside, say $\frac{1}{4}$ inch, and use the "trough" so formed to run your solder down. After you have the ends of tubes soldered into both of the inside walls, one at each end, the outside wall, which makes the water-jacket, is simply flanged around in a piece of scantling with a mallet, and the whole job is ready for the water-filling funnel piece to be soldered on over a hole cut at the lower part of one end. Keep this filled fairly low, so that you can see the water in it and use it as a gauge to see when refilling is needed.

After studying this melter you will observe that the spaces at the bottoms of tubes are available for the full width of the $\frac{5}{16}$ -inch when old combs are being melted, but that the crinkled wire is used when clean honey and wax are going thru. The recess in the "honey-shed" is to allow the wire-cloth screen to fit in, which prevents any slumgum passing it should the wire edge of the screen get slightly bent from abuse when shaking slumgum into the wax-boiler. The operator may use two screens alternately, or scrape the one down as occasion demands.

All the weight of wax and honey is used to press on the wedge-shaped surfaces. That there may be no outside walls to throw away heat compared with the surface of the tubes, the two end walls and the two sides are wood-jacketed so that all the heat is kept in the melter. The tubes have an aggregate heating surface, apart from the honey-shed, of 1584 square inches, or 11 square feet—a surface not nearly attained as actual wax-contact surface by any other

melter ever designed. It will be found advisable to solder the exit-tube into the inside wall so as to allow that part of the honey-shed soldered into the same opening to go over, not under, the exit-tube, for, if soldered under the tube, it dams back any small amount of slumgum which may slip down while changing screens.

The screen and clips to support it need no describing. Any one can bend fence wire to shape, and cover with wire cloth; but keep the screen midway between the top edge of the gutter and the bottom of the front tube. This gives a clearance of three good inches, both above and below.

Either sheet copper (tinned) or heavy galvanized iron will answer, altho the iron pits inside badly after two seasons. Do not forget to use the melter with the exit end of the gutter two inches lower than the other end, and place the filling formed at the top end. Then if you always see water in the funnel at the top end you can rest assured that your melter is not running dry. You will find you will not be troubled much with refilling, as the steam has plenty to do at melting, and very seldom gets a chance to evaporate.

Everything runs completely away. The slumgum is held back by the screen, and everything is on a fairly steep slope, and all wax and honey are off the melter less than 30 seconds after melting. I have run honey thru this melter twice after recandy-ing, and cannot see that it darkened one particle. Of course, when old combs are going thru, one must expect a darkening as a result of hot honey absorbing stain from cocoons, pollen, and general comb dirt; but with fairly new comb no discoloration results; the honey runs away too rapidly. As to cappings, three people will not keep it going if the stove is kept going properly (unless they are regular comb-butchers). The novelties I claim in this melter are, rapidity of honey clearance from melter; increase of melting surface; separation of slumgum, thus preventing discoloration; and impossibility of overheating the contents at any point.

Kihi Kihi, New Zealand.

* Perhaps the readers will get a better idea of this melter if we explain briefly that Mr. Miller uses three large wedge-shaped tubes, of the dimensions given in the cross-section drawing, which, with the corresponding sloping sides of the melter, make four spaces thru which the cappings and honey pass, which gradually decrease in width until the final opening is only $\frac{5}{16}$ of an inch into the straining-compartment beneath. All the tubes being heated by steam, an unusual amount of melting surface is thus provided. Above the tubes is a hopper-shaped compartment into which the cappings and honey fall from the knife. The narrow spaces between the tubes are filled in with kinked wire when desired, to prevent unmelted wax from falling thru.—Ed.

Amount of Stores Needed

I have noticed the editor's reply to Mrs. Allen, page 969. In this locality we need ten combs about full. The hives, bees, combs, honey, and all should weigh at least 65 or 75 pounds, November 1. If a colony with this amount of stores has a good queen it will be in splendid condition next spring.

Havana, Ala.

J. S. Patton.

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Talk about hard luck, a prominent bee-man out in Indiana prided himself on the way his hives were arranged in nice neat rows out in his back yard. Somelody thought they were tombstones and filed a complaint against him for keeping a dog cemetery inside the city limits.

Wiring Frames and Transferring Colonies

My plan of wiring combs may not be new, but I have never seen it mentioned by any one. I use a common soft-iron wire about No. 14 or 16. In fact, I use common wire used for baling hay. I cut a piece exactly as long as the frame is wide, so as not to extend out. The wire is nearly the size of the hole in the frame made for it. I then run the wire thru the second hole from the top, and fasten it to the wax by pouring a little melted wax along the upper edge of the wire. This fastens it securely. It might be better to use two wires—one thru each of the two center holes in the frame. I put up some with two wires, and some with only one. I cannot see but one wire answers every purpose. The bees will draw out the combs right over the wire, and I have yet to see a comb the least sagged. You can certainly get perfect combs drawn by this method. A wax tube or wire-imbedder might be better, for fastening the wire to the combs; but as I did not have one I simply ran a little wax along the top edge with a spoon. You can do it very fast.

Here is my method of transferring bees from box hives: I lay the box hive down on the side. From the top end I measure down 20 inches and saw thru the board. I then pry this piece of plank off, set my hive-body over this hole after putting in three or four frames of drawn combs containing some brood, fill out with foundation, put on the cover, and the job is completed. The bees will go immediately up to cover the brood, and soon the queen will be up, when you can put your excluder under. When I have the old box open I remove as much of the old wax as possible, so as not to interfere with the brood. You can nail a piece over the bottom of the old hive, just leaving an entrance for the bees. The piece taken from the old hive can be used for this purpose. Should the hive body be a little wider than the box you can easily nail a strip along the side to make it the desired width.

Newbern, N. C.

F. A. Ganes.

[The principal objection to the use of one or two heavy wires instead of a greater number of fine wires is that the combs are not as well protected against breakage, either in the extractor or when they are being handled.—Ed.]

The New York Contest

We are getting many inquiries, asking for particulars about our proposed postal-card scheme having for its object the booming of honey as an article of food. Some want to know what ideas we want incorporated, others what size the sketches should be; others ask whether we want them in colors or in black; whether photos of apiaries would do, etc. To all these inquiries we can only say, "This is for you to work out." It is more the idea than the perfect execution of the idea we are after.

A very good thing has been suggested to us—a label to be pasted upon the top of every honey section as it stands in the shipping-case, the label nearly or entirely to cover the wood, with reading as follows:

This section of honey (14 oz.) equals in food value	
24 oz. beefsteak.....	(30c)
30 oz. of codfish.....	(40c)
20 eggs	(50c)
11.2 oz. cream cheese....	(16c)
2 quarts of milk.....	(16c)

[The comparative figures on label were taken from *American Bee Journal*, Dec. 1915.]

One of our committee says: This is the best thing which has been offered, altho not exactly in line with the postal-card scheme. But we may recommend it, also in connection with a photo of the articles named, all upon a postal card.

H. L. Case, F. Greiner, W. F. Marks,
Committee.

Wild Bees and Their Honey

I am sending a few of the bees variously called Mexican bees, Spanish bees, and wild bees. The comb is of paper instead of wax. Their honey is said to be very sweet, and is deposited in the comb in layers round and round the circumference of the nest. The nest is built in the branches of some tree or shrub. I do not believe that the honey is any better than that of the domestic bee, but depends altogether upon the character of the nectar obtained, just the same as that gathered by any other bee. The report of its excellence comes from the testimony of some boys who robbed out a nest; and the extravagance of their statement is probably the outgrowth of an intense love of honey gratified in an unusual and unexpected manner.

These little fellows stung me up some when I caught them to put them in the cage, but especially when I cut off a scrap of their nest to send you. The nest looks like a hornet-nest, egg-shaped, about 12 inches long by 10 inches thru.

La Feria, Texas. George M. Plumb.

[The bees sent by our correspondent are considerably smaller than ordinary honeybees and are more brilliantly colored. The head and thorax look very much like those of ordinary bees except that they are smaller. The abdomen is quite different. The upper part is not segmented, but bald and jet black. The lower part is segmented, the segments being a brilliant light yellow, approaching somewhat the color of yellow-jackets. The abdomen ends in a sharp point. We have seen similar bees occasionally, and they are found quite frequently in Florida. Sometimes there are strains or varieties very similar in shape and size, but having a greenish luster.

The nest, as mentioned by our correspondent, is fibrous; and, with the exception that the cells are smaller, it looks very much like a hornet-nest, the material being evidently made in the same way, and looking like paper pulp.—Ed.]

Probably Pure Honey

We are mailing you under separate cover part of a tumbler of honey. This represents some of the contents of some tumbler honey picked up on the market which is put up by a Chicago concern at a very low figure; and while the color is good it does not taste just right. We would thank you to advise us just what you think of this honey.

Penn, Miss.

The Penn Co.

[We should not be suspicious of this honey, because it seems to have sufficient flavor to justify the belief that it is pure. If it is adulterated at all it is adulterated with invert sugar, and the price of invert sugar at the present time is such that it would be practically impossible to put that in and make any money, providing the hon-

ey was sold at a low price. It is our opinion that this is a sample of pure honey; but you will remember that good honey of good flavor is selling at a very low price, and it would be possible to make up a blend of several of these cheap honeys and still keep them all pure.—Ed.]

Four Untested Queens, but Purely Mated

After reading Mr. Webb's experience with untested Italian queens, page 74, Jan. 15, and the editor's request for others' experience, I take the liberty to send mine, tho in only a small way. Last summer I sent for five untested Italian queens from four different breeders and succeeded in introducing four, one from each breeder, and all four proved to be truly mated.

Tuxedo Park, N. Y.

E. Wilson.

Death of Jacob Creighton

Jacob Creighton, of New Haven, Hamilton County, Ohio, a beekeeper of fifty years' experience, died December 11, 1915, of pneumonia. He was a veteran of the Civil war, and in his 71st year at the time of his death. He leaves four daughters to mourn his death. He owned an apiary of 103 colonies, and was very successful as a beekeeper, and exhibited bees and honey of his own production several years at the county fair at Carthage, Ohio.

Hartwell, Ohio.

C. A. Brooks.

Making Hives

By Grace Allen

Oh, it's tap-tap-tap—
Hear the hammer striking,
Shaping up a thing today for years and years
to come,
Making of some piney boards,
Nails and honest effort,
A home for bees to live in and to labor in
and hum.

So it's rap-rap-rap—
See the nails drive under,
Patient nails to cling and hold while bees
throb out and die,
While days with tender dawns
And pomp of purple evenings
Close their scrolls forever as the years go
rolling by.

So it's rap-tap-tap—
He and I together,
Making hives with patient nails and vision-
ing and thought.
Nations are at war;
Yet not alone in battle,
But here in work and wonder too, His pur-
poses are wrought.

A. I. Root

OUR HOMES

Editor

Search me, O God, and know my heart; try me and know my thoughts; and see if there be any wicked way in me, and lead me in the way everlasting.—PSALM 139:23.

Nearly sixty years ago an old gentleman gave me some advice that has been of benefit to me all my life. He was a money-lender. I went to him with my father to borrow \$500, in order that I might go into business as partner with the man I was working for. My father was to sign the note with me. When told *why* I wanted the money Mr. Beekman said something as follows:

"My young friend, I have money to let, and it is my business. Your father for security will be all right; but I want my money to do good, and not harm. I should like to give you a little advice; but judging from past experiences with young men, I fear it will do no good."

I urged him to go on.

"Well, you have doubtless heard hard stories about me. Perhaps you have heard me called hard names."

I assented, because it was true.

"Well, this is because, if I loan money *at a reasonable rate*, I *must have* it back according to agreement. I should go bankrupt myself if I did not insist on this. If I understand, you have already a good job at fair pay."

I assented again.

"Well, even though I have money lying idle, and want to have it earning something, I would advise you at your age to stick to work and *earn the money* instead of borrowing. By the time you have earned \$500, or something like it, you will know better how to take care of it, and perhaps be able to start in business alone."

He then turned to my father and remarked that "Boys in their teens seldom listen to any such advice."

Right here I surprised both my father and Mr. Beekman by saying:

"Mr. Beekman, I not only thank you from the bottom of my heart, but I am going to take your advice;" and as father and I drove home he said I had lifted quite a load from his mind by the course I had taken. In a year or a little more the man I was going in with ran away, leaving debts right and left unpaid.

During the past season, on account of the large amount of money we have been handling we have borrowed more money than usual. The bankers loaning us the money said:

"We are glad to help great enterprises by giving them such accommodations as their statement entitles them to; but we must be *sure* there is no blundering carelessness or crookedness in reporting conditions. Have your business audited by some *outside disinterested* firm, and we shall be glad to accommodate you in every way in our power."

This was so strikingly like what our good old friend Mr. Bleekman had said to me years ago that it brought the whole thing to my mind.

This "auditing" business was a new thing to me, and I asked a great many questions. Of course national banks are audited every so often by a government inspector, and in the same way there are firms in our great cities that make a business, when required, of going all through any factory or great business concern so they may certify to the great world at large that the institution is not a hollow shell or "make believe" that may "bust up" almost any day. This institution might do a lot of good by informing the *proprietors* of things they didn't know about. We have lately been told in regard to the *Eastland disaster* that the paid inspector had not looked the old boat over for the last *three years*.

Right over in Summit Co., adjoining Medina Co., they recently found a man who had been receiving a salary *for years* for caring for canal locks, after the locks of the old unused canal had *rotted away!* When called to account, he replied that, as nobody objected, he thought it all right to draw his salary.

Does it not begin to look as if some outside "auditing institution" were needed all over our land? And finally, dear friends, is there not *greater* need that the Holy Spirit should look into your hearts and mine to see if there be any crookedness or cheat, and admonish us?

While pondering on this matter it occurred to me I had seen something in God's precious word that "hit the nail" exactly "on the head," and after considerable hunting I found it.

Dear reader, are you ready to make *with me* this prayer of David *your* prayer?

"Search me, O God, and know my heart; try me and know my thoughts; and see if there be any wicked way in me, and lead me in the way everlasting."

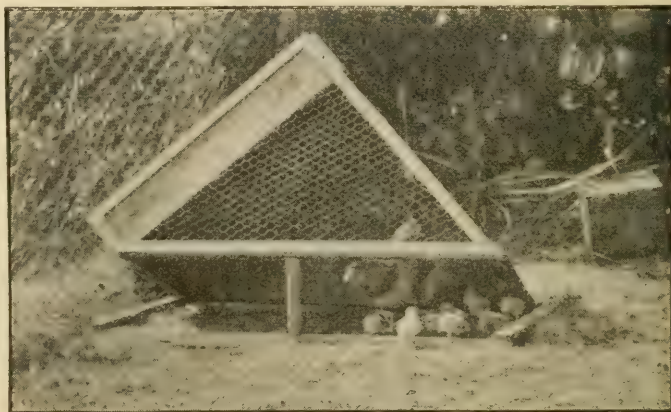
POULTRY DEPARTMENT

THE 17 CHICKS AND THEIR MOTHER.

I told you they were "safely housed" (?) near our bedroom window, etc.; but before I tell you what happened I want to give you a picture of them, and tell you how to make a very safe and efficient home for a hen and chickens, without very much labor and expense. First, get a nice smooth grocery box, rather long and wide, and shallow. The one pictured above was 34 inches long, 20 wide, and 8 deep. I removed the cover carefully, and nailed one end against the end-board inside of the box, so as to make a sort of letter A. Then the back side was boarded up with shingles placed up and down, and inch-mesh netting tacked over the front side, as you see in the picture. To cover the edges of the wire netting I nailed strips of planed lath over the front as you see. Well, I used this last winter without any floor but the ground under it, and no harm came to the chicks. I don't like any kind of wooden floor, neither does the mother or chicks. If right on the ground, the whole thing can be moved over to fresh grass, the hen can scratch and dust herself, etc. But, listen! before the chicks were a week old a skunk or opossum dug under a back corner and pawed out two chicks. The hen then moved over to the opposite corner, where he dug under again and got two more. If you, my friend, have

"been there," you know something how I felt about my "Christmas present."

I moved her and the 13 remaining chicks to one of the houses where netting is let down into the ground about a foot all round; but in two days the same "varmit," being *hungry again* for a "chicken dinner," dug down and managed to get thru at one



The hen that stole her nest out in the woods and brought home 17 chicks

corner and took *three more*, leaving only eleven. I said to Mrs. Root and Wesley:

"This sort of business *is going to be stopped*—on our chicken-ranch, any way."

I made a square frame of wood, 48 x 20 inches, for the coop to rest on; but instead of covering this with a flat piece of netting I made a sort of basket about like the lower part of a corn-popper. Then we dug out a place for it, putting the dirt back into the basket, and now "mother biddy" can scratch and roll and dust herself on her dirt floor just as if there were *no* wire netting under her. Well, we have our house for sitting

hens; but the same varmint (or one like him) dug under, as I have explained, and left only the egg-shells where a hen was almost ready to hatch; and altho this room is 6 feet by 8, we have just "floored" it entire with netting about a foot below the ground. I feel some better now, but I am not *quite* over being "mad" about the loss of my chicks yet. So



The three rows of potatoes shown on p. 129, Feb. 1, just three weeks later. on Christmas day.

I bought 10 cents' worth of strychnine, and am going to try *that*, and this reminds me that I forgot to tell you that, during the "fracas," I caught him (or them) in two different traps, but he in some way pulled out of both.

A BED OF POTATOES PLANTED NOV. 18, 1915.

The picture will show you, if you examine closely, the way in which we make our raised beds with deep wide paths between. This bed contained a heavy stand of feterita, as I have explained, that was ruined by blight; and before planting the potatoes it was all spaded under, and is now rolled so the potatoes have just what they like—a mass of decaying humus in which to grow and expand. In the background you have a better view of the great 3½-year-old rubber tree, 25 feet high, and 50 feet spread. The coop that held the 17 chicks is at the foot of the tree among the pineapples.

HOW TO MAKE HENS LAY.

I am reading the poultry department in GLEANINGS as well as every other. I have at present 20 Plymouth Rock hens. I feed them regularly, giving them from one to two quarts of wheat twice a day in the straw, or some place where they have to scratch for it, and I pound some green bones and broken chinaware on a flat rock once or twice a week. I wish that some time you could be here and hear the music they make. As soon as they hear the hammer strike they come from every direction and pick the food off the rock. I have not hands enough to keep their bills off from the rock. My hens pay me well for that extra care, and a few eggs all winter until January, when they start to do better every day. I have sold since Jan. 1 21 dozen and 7 eggs. The highest price has been 30 cts. for the first 3 dozen; then the price dropped to 20 cts. on March 6. I sold 5 dozen for 15 cts. per dozen, making a sum of \$3.50. Now, March 23, eggs sell at 13 cts., and it is said the price will drop to 10 cts.; but as we are six miles from the nearest store we keep them for our own use, and take the good sizes for setting, because it does not pay to drive a horse to town or take them on horseback as I did March 6, riding to town eight to nine miles.

All my neighbors a mile around me are wondering, and ask me what I feed my poultry. I told them the full truth about it. We have now, since this winter, one of our neighbors so close by us that the chickens would get mixed up were it not for the difference in race. I have Plymouth Rocks, while she has Rhode Island Reds. The first days her chickens came over here searching for food (and found some too) I waited until they had roosted, and then took them over to her. My! how light they were! I thought I had only a handful of feathers in my arm. She got her first eggs the second week in March; one every second day.

One neighbor fed 120 chickens all winter without getting one egg in return; but now, as they started to lay, he sold most or half of them because wheat is high and he ran short. Would it not have been better to sell that number last fall and feed the rest a little better? He also has the idea that if he sows the feed in the straw they can't find it, and sows it on a plain clear ground.

I knew a lady in Colorado who used to say, "If my hens would lay better I would feed them more." What do you think about that mistake? I am sure

if the hens could speak they would have said the same, but the other way, thus: "If you would feed us more we could lay more eggs." I once was packing in about 24 dozen eggs for market when she came in the house. She was astonished, and remarked that she had never seen an egg for a long time.

We raised eight children—four boys and four girls. The oldest one is eighteen, and we never consulted a physician or had one in the house except when our little son at the age of four broke his leg above the knee. Then, of course, we were compelled to call for the surgeon, about nine miles off, and the bill was \$20. The boy is now eight years old, and his limb is just as good and strong as the other one, and not a bit shorter. The man did his work well, and came only that one time. He told us what we had to do, and we got along all right.

In regard to the high cost of living, we agree with you. We use only graham for bread, and I put only two or three cups of white flour in it. We take two to three sacks of wheat to a neighbor, run it twice through the chopper or feed-grinder, and the coarse parts, or bran, which remains in the flour-sieve we use for breakfast cereals—cook it well and eat it with milk. We also use wheat for coffee, so we reduce the cost of living to a great extent.

MRS. MARGARETE GREEN.

Weiser, Idaho, March 28.

ELECTRIC-DRIVEN VEHICLES AND STORAGE BATTERIES.

I have several times on these pages mentioned my electric automobile, and told what a convenience it is, especially for an old man. But I did not think, until lately, to contrast the expense of running an electric compared with a gasoline vehicle. Last fall, however, I was offered an electric in very good repair, at a low price. While the batteries in mine are sufficient for a trip of only thirty or forty miles, this new one was good for sixty or seventy. Before taking the machine, however, I made inquiries in regard to storage batteries, and was somewhat discouraged on learning that the expense of renewing batteries, without saying anything about the cost of the current, is away beyond gasoline. As an illustration: Ernest has a gasoline machine that will carry five passengers at a little over half a cent a mile when gasoline was down as low as 13 cts. a gallon,* and a gallon on fair roads has run him 24 miles. Well, a storage battery with 28 cells will, I am told, give probably 6000 miles, and likely give good service for two years. But when the battery needs to be renewed, at the present cost of metals it would be about \$180. This would be 3 cts. a mile for the upkeep of the battery, against half a cent a mile for gasoline.

While at the Ohio State Fair I saw a neat little outfit for lighting rural homes by means of an electric current, at a price of only about \$100. When I inquired about

* It is now 22c and going higher.

renewing the battery he said they guaranteed them for two years; and renewing the batteries costs \$20, or \$10 a year. Now, we have seen that the cost of running a battery for an automobile is about six times as much as for gasoline. From this I gather that the cost of running electric lights in the home is something like six times as much as if the current were taken direct from a gasoline-engine. In that case, however, you could have light only while the engine is running. Therefore it behooves one who has such a rig to get his light from his storage battery just as little as possible.

We hope there may be some improvement made in storage batteries so as to reduce the cost. Electric automobiles, on account of the above, will probably be mostly used by those who have plenty of money—at least the expensive ones that will go from 75 to 100 miles with a single charge of battery. The *convenience* of electricity, especially for short trips up town and around home or between one's home and his place of business, will always make them in demand. When I am tired of hoeing in the garden, it is a very great privilege to get into my little electric car and rest while I run over to the factory or run around town and visit people. Where I am well acquainted, the grocer will bring me whatever I wish without my getting out on my feet at all. It is also, on account of its simplicity, well

adapted for women to manage and to run around with. Where one has a plant that furnishes a current, as we have, the expense of charging a battery is not much. Where, however, you are obliged to pay the town or electric lighting company for charging your batteries, this involves considerable cost in addition to the expense of renewing the batteries when they are used up. The present high price of lead is just now making storage batteries still more expensive.

Later.—I clip the following from the *Cleveland Plain Dealer*. It comes from West Orange, N. J., and is dated Sept. 20:

GOOD BY, HORSE; EDISON SAYS STORAGE BATTERY FOR DELIVERY WAGONS FINISHES DOBBIN.

"It is the beginning of the end of the horse. Horses in the near future will be used only as ornaments. Their commercial value will be nothing."

Thomas A. Edison laughed today at his plant here as he surveyed another of his accomplishments—a storage battery for delivery wagons.

Before half a hundred experts he explained the mechanism. They stood awe-stricken as the light horseless delivery wagon rolled around the yard.

I have been for some time watching and hoping that Edison or somebody else would invent a storage battery that would not cost so much for the upkeep; and the clipping above may be an indication of what is coming. But, as I have outlined, the objection to electricity in place of a horse has been, and is at present, the expense of renewing the battery when it is used up.

TEMPERANCE

ANOTHER VICTORY IN THE LINE OF WHISKY ADVERTISING.

We clip the article below from the *New York Evening Journal*.

No whisky advertisements in any of the Hearst publications hereafter.

Public Health, Public Morals, and Public Righteousness Demand a Campaign against the Drink and Drug Evils.

I note in a recent issue of *The American* an advertisement of a whisky masquerading as a medicine.

I wish all our papers to reject all whisky advertising of whatever kind, and all advertising of any ardent liquors, and all advertising of any medicinal preparations containing alcohol or opiates in habit-forming quantities.

Furthermore, I do not think that passive opposition to such great evils as the drink habit and the drug habit is sufficient for forces as powerful and as vital in the community as our newspapers.

I think our papers have more active duties and more positive responsibilities. I think they should campaign for a system of sumptuary laws.

1.—To prohibit the sale of injurious and habit-forming drugs except by the state and upon the prescriptions of regular physicians.

2.—To prevent the sale of alcoholic beverages except where the proportion of alcohol is fixed at

some definite and known innocuous proportion.

3.—To make the taking or administering or prescribing of alcohol or opiates in habit-forming quantities a criminal offense, from the penalties of which regular physicians shall in no way be exempt.

The campaign against the drink evil and the drug evil is a matter of public health, of public morals, and of public righteousness which it is the duty of our papers actively and aggressively to promote.

WILLIAM RANDOLPH HEARST.

WHO ARE THE VOTERS, AND WHO DO THE VOTING ON THE WET AND DRY QUESTION?

Before discussing the above I want to quote a little from the *American Issue* of Jan. 21:

Mr. R. W. Walters, a structural-iron worker of Toledo, was sent to East Youngstown at the time of the riot, by the *Toledo Blade*, to report what he saw. Mr. Walters says:

"More than one man was seen with a torch in one hand and a tin cup of whisky in the other." Mill property was not attacked, but the mob looted and burned the homes in the community. Mr. Walters further says, "The rioters were so drunk that two gangs of strikers met on a hill and fought each other."

REAL CAUSE OF THE TROUBLE.

The *Coshocton Tribune* calls attention to the fact

that employers and employees were not far apart in their negotiations, and their differences were not of a nature to provoke the outbreak; therefore there must be another reason, and then the *Tribune* gives the reason:

"The entire affair was only another monument to the ability of the open saloon to convert an irregular gathering into a whiskey-crazed riot. *Had there been no saloons in Youngstown there had been no riot.* Had the men who composed that mob been deprived of booze the state of Ohio had been spared another whiskey-inspired disgrace, and the city of Youngstown the humiliation of appealing for state troops to maintain order within her corporate limits."

YOUNGSTOWN WET AND DRY.

The saloons in Youngstown opened last Friday afternoon after being closed for five days because of the riot. The first 12 hours following the opening two men were sent to the hospital with battered heads, one man was held up and robbed while intoxicated, and 32 others were arrested on charges of intoxication, disturbance, and disorderly charges growing out of drunkenness.

This is the 12-hour record as shown by the police blotter. During the five days the saloons were closed only ten persons were arrested for intoxication, and these secured liquor from nearby towns.

Now, then, friends, is it not true that the class of people described in the above are the ones who voted Youngstown wet? and will not these people do it again? Was it not the same class down in Cincinnati, that kept the whole state of Ohio wet, contrary to the wishes and intention of the God-fearing and law-abiding people of our state? A while ago there was talk of letting only those vote who could read and write; but it didn't pass, and I am glad it did not. Well, just now the best and most highly educated women (and *mothers*) of our land cannot vote; but the confirmed drunken inebriate votes, and, so far as I know, so does the most desperate criminal who happens to be out of jail. Is it not getting to be about time to draw a line somewhere?

IS WHISKY A MEDICINE FOR GRIP OR ANYTHING ELSE?

We clip the following from the *Bradentown Evening Journal*:

A WARNING.

Whisky-dealers, ever eager to increase their business and their profits, have taken advantage of the prevalence of grip in the East, and thru newspaper advertising have sought to increase sales by representation that their goods are a panacea for the ills of life, including grip.

The Commissioner of the Health Department of New York has issued a warning against the use of whisky by persons suffering from the grip. This action by the Health Department authorities was the result of recent advertisements claiming whisky to be a sure cure and preventive of the grip.

"There is nothing more injurious to the patient suffering from grip than whisky," said Dr. Charles Balduon, director of the Bureau of Public Education of the Board of Health. "This Department wants to refute the ridiculous claims sets forth by whisky concerns in some of the Sunday papers."

"Whisky-drinking should be condemned in general; but for victims of colds or bronchial troubles, whisky acts as a poison. Such claims attributed to

whisky are misleading to the public, and do great harm."

WANTED, BRIGHT BOYS.

If the following, clipped from the *Gospel Trumpet*, could be put into the hands of every father who has one or more boys it doesn't seem *possible* we should have so many who would vote "wet."

Wanted, some bright boys full of life and cheer, to stand at my counters as drinkers of beer; to fill up the ranks, without further delay, of the army of drunkards fast passing away. Sixty thousand a year will only supply the loss to our trade from drunkards that die. Send those who can toil, or have wealth to bestow, for profits are small on old drinkers, you know. Let them come from the shop, the school, or the home, we'll welcome them all whoever may come. Let mothers surrender their sons to our cause, and fathers keep voting for good license laws. For if you will vote to keep running the mill you must furnish the grist or the wheels will stand still.

"GRAY AND TATTERED, AND KNEE SHAKY."

Dear Mr. Root:—I am inclosing a clipping that I am sure will please you to read. I hope the good work may go on until a saloon cannot be found on this green earth. But why not commence at the root of the evil, the breweries and distilleries?

Indianapolis, Ind., Jan. 15. J. F. KIGHT.

Below is the clipping:

POOR OLD JOHN.

Last year alone, 15,000 saloons were put out of business, and more than 100 breweries and distilleries were closed, it is believed, forever.

Say what you will, John Barleycorn is having a hard time, and we wouldn't give 30 cents for his future. He is despised in the best circles, and the friends of his youth know him no longer. He is old and gray and tattered, and his knees are shaky. He totters. He is a pariah. He is a criminal; and when he eventually gasps his final breath and the sheet is pulled over his head there will be more rejoicing than mourning.—*Macon News*.

RENTING PROPERTY TO SALOON MEN.

There is a conscientious awakening in the hearts of individuals who have been renting property to saloon men. They are realizing that to accept such rents is to become a partner in the whisky business.

As an example, at the Sailors' Snug Harbor, which is located on Staten Island, are operated on its property fully 100 saloons. This institution is a home for sailors; and many years ago, when it was first organized, a farm was presented it. The city grew, and now the farm is simply a part of the city, covering ten squares. The income from rentals is great, and especially from the saloons. The trustees of this institution recently decided against the saloon, and as fast as the leases expire none will ever be renewed.

This will add one among the largest dry sections to the city of New York, and is a fine example of the waking up of conscientious men to the fact that there is a good way and a bad way to make money.—*Southern Fruit Grower*.

THE "KIDNEY CURE" SWINDLE.

We clip the following from the *Rural New-Yorker*:

The United States Government is after the manufacturers of so-called "kidney cures," and it has been able to show up several of them as frauds. Many of these so-called "cures" contain from 40

to 50 per cent of alcohol, probably in the form of brandy. The Department states that alcohol is a medical irritant, dangerous in many cases of kidney disease. There seems to be no doubt that these so-called remedies are merely substitutes for rum. They are practically worthless as remedies, and actually harmful, not only because of the amount of alcohol they contain in its effect upon the system, but because they establish the taste for liquor. A case is reported to us where a man died after several years of ill health, and it was found that he had swallowed three barrels of one of these remedies, and paid for it at the rate of nearly one dollar a bottle. There is no wonder he died, and the wonder is that his heirs had anything left after he passed away.

If the above winds up some of the malt whisky ads we can all rejoice.

CIGARETTES BARRED FROM THREE GREAT PERIODICALS.

The following letter, written to one of the employees of The A. I. Root Co., I am sure will cause rejoicing by all well-informed good people:

Mr. DeForest M. Olds, Scoutmaster,

Dear Sir:—With the exception of a few advertisements heretofore accepted, and which we are under obligations to print, no cigarette advertisements will hereafter appear in any of our publications.

Not only will we exclude cigarette advertisements, but after January 1, 1916, except in one advertisement previously contracted for, all reference to cigarette uses will be excluded from tobacco advertisements in our publication.

In spite of the fact that this policy will result in a reduction of several hundred thousand dollars in our annual advertising receipts, we believe we have taken the right course in this matter.

For the reason that several men connected with your organization have made inquiries about our advertising policy, we believe that you too may be interested in this announcement.

Very truly yours,

THE CURTIS PUBLISHING COMPANY.

The Ladies' Home Journal

The Saturday Evening Post

The Country Gentleman

M. E. Douglas, -
Manager Sales Division.

Philadelphia, Pa., Dec. 30.

CIGARETTES—SHALL THEY CONTINUE TO BE FURNISHED FREE TO "CREATE AN APPETITE?"

I believe it is true generally, or at least I hope it is true, that the boy who is looking for a job stands no chance at all if his prospective employer discovers he uses cigarettes. Nobody wants him. I believe our oldest grandchild, Leland I. Root, has never before furnished anything for GLEANINGS; but while attending school at Lebanon, O., he forwarded the following clipping from the *Commercial Tribune*:

GIRL OR CIGARETTES? CAN'T CHOOSE BOTH IN TOWN IN KANSAS.

LEWIS, Kan., May 8.—"Fingers that handle cigarettes shall never hold ours." "It's nix on nicotine," so far as cigarettes and the girls of Lewis, Edwards County, Kansas, are concerned.

The Lewis Anti-cigarette Club now numbers in its membership virtually every girl in the Lewis High School, as well as many of the young women of the town outside of schools. On the membership roster are all of the leaders in the social younger set.

The avowed purpose of the club is to drive the cigarettes from Lewis. It was getting a foothold. High-school boys and young men of the town generally were taking to the habit.

Lectures from the pulpit, pleadings of parents, sober advice by physicians, failed to check the cigarette fad. So the girls of the town took it up. At a meeting held recently at the home of Miss Lottie Crabtree the Anti-cigarette Club was formed. It started with but six girls as charter members.

Before the week was over, virtually every girl in the high school was enrolled. The next Sunday the membership roster was swelled at the Sunday-schools. Now there are but few girls under 20 years of age who are not members.

The girls take a solemn pledge to shunt cigarette smokers, and keep it.

At first the boys regarded the club as a joke. But it wasn't so funny when revival meetings started in the town Sunday night, and after church every blessed girl deliberately cut the escorts lined up at the doors and struck out for home alone.

SOMETHING FROM A MISSIONARY ABOUT THE BEES OF SOUTH AFRICA, ETC.; ALSO SOMETHING ABOUT THE MONKEY THAT WAS STUNG TO DEATH BY BEES.

Dear Mr. Root:—For some months we have been receiving GLEANINGS, and are very much interested in many of the articles. We often wonder to whom we are indebted for the paper. I believe that if you were here you would not be in the bee business very long. However, in Abyssinia, some 250 miles from here, there must be great quantities of honey produced, for every year there are tons of beeswax brought down the Sabat. The bees of this part have stings and tempers too. Sometimes a swarm will occupy a place about our premises in which it is not welcome. I remember that once a swarm of bees found a box to their liking; and so, after some months, one of our missionaries thought that there might be some honey, so he rigged himself up with mosquito-netting and lifted the lid. That was as far as he got. Some flew so hard against the netting that it was driven against his face, and he got stung. He took refuge in the house; and during the rest of the day, when any one showed himself at a window the bees came dashing against it. Chickens were stung to death; a monkey died from the effects of the stings it received. Another time the box was opened and a little honey removed. The honey here is made from the blossoms of the acacia and other trees, and is quite strong. It is very dark in color.

The people here live on dura, a sorghum; but it does not produce from suckers after the first head is removed.

C. B. GUTHRIE.

American Mission, Doleih Hill, Sabat River, Egyptian Sudan, Sept. 11, 1915.

Why, my good friend, almost ever since the time GLEANINGS was started we have been sending it free of charge to foreign missionaries like yourself. All we ask is to let us know at the end of the year that they read it and are glad to have it keep coming. We shall be pleased also to have you tell us about the bees in different parts of the world where they may be located.



Engine Power costs less -NOW

By using 1916 Model WITTE ENGINES

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Gas, Distillate.

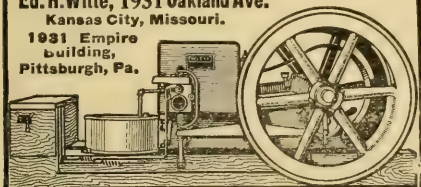
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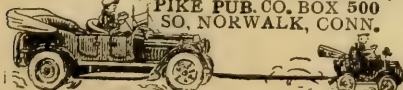
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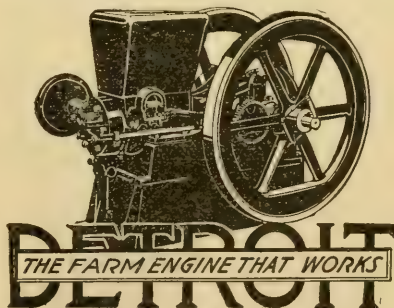
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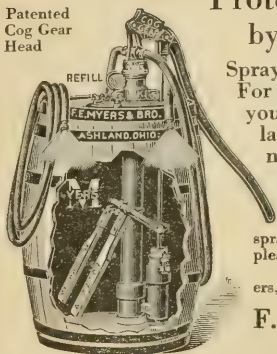
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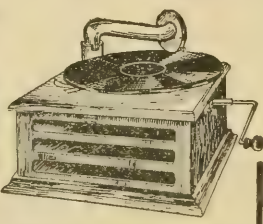


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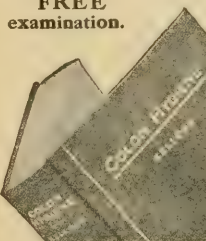
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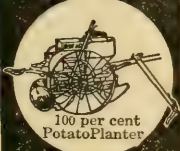
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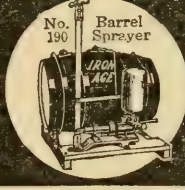
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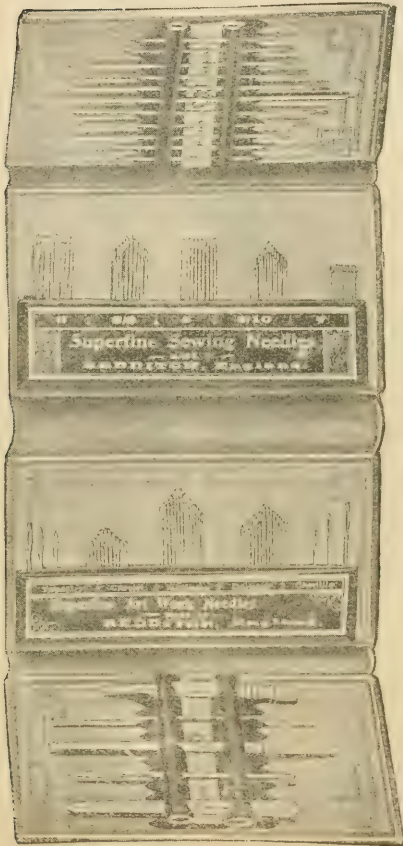
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Fine new-crop clover and basswood honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 a can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Amber extracted honey, well-ripened and mild-flavored, 6 cts. Honey-dew honey for baking or bee-food (cheaper than sugar) 5 cts. by the case; ten cases, 4½; 25-case lots, 4 cts. per pound; two sixty-pound cans to the case; also have some fall comb honey for \$2.25 to \$2.75 per case of 24 sections. H. G. QUIN, Bellevue, Ohio.

Clover, basswood, amber, and buckwheat honey in 60-lb. cans and 165-lb. kegs at 7 to 9 cts.; also in 3, 5, and 10 pound friction-top pails. State kind and quantity wanted. C. B. HOWARD, Geneva, N. Y.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices. SUPERIOR HONEY Co., Ogden, Utah. "Everything in bee supplies."

FOR SALE

HONEY LABELS at money-saving prices. Samples free. LIBERTY PUB. Co., Sta. D, box 4E, Cleveland, O.

HONEY LABELS.—All styles. Catalog with prices free. EASTERN LABEL Co., Clintonville, Ct.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog. W. N. SCARFF, New Carlisle, Ohio.

Good second-hand 60-pound cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grows in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—500 cases with empty 5-gallon cans, good as new at 25 cts. each. GEORGE RAUCH, West New York, N. J.

FOR SALE.—If you can use 100 lbs. or more of Dadant's foundation, any grade, direct from factory, write me for reduced price. F. W. LESSER, Rt. 3, East Syracuse, N. Y.

BEE SUPPLIES.—Write for prices before buying. We can save you money. We make a specialty of special size hives and frames to order. THE M. C. SILSBEE Co., Rt. 3, Cohocton, N. Y.

FOR SALE.—50 Falconer's dovetailed 10-frame supers holding 35 3½ x 5 x 1½-inch plain sections, complete with sections and foundation, worth \$1.00 each; 55 cts. each, or \$25 for the lot, good as new. L. F. HOWDEN, Fillmore, N. Y.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your order. R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

FOR SALE.—At all times, good second-hand empty five-gallon honey-cans in A-1 condition, packed two to a case, at 25 cts. per case, terms cash, f. o. b. towns of our various factories. NATIONAL BISCUIT COMPANY (Purchasing Department), 409 West 15th St., New York City.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—One German wax-press in good condition except followers, \$4.00, one old-model two-frame Cowan reversible extractor, fair condition, \$3.00. THE M. C. SILSBEE CO., Rt. 3, Cohocton, N.Y.

FOR SALE.—200 complete hives with covers and bottom-boards, 10-frame, with all drawn combs; free from disease; factory-made hives; \$2.50 each, complete. GEORGE BRANT, Smithville, Ontario, Can.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your ideal. Send data. Advice and two wonderful Guide Books free. Highest references.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

BABY CHICKS.—Barrows contest entries furnish us a son to head one pen; also Wycoff stock. Prices reasonable. LINESVILLE PULLET HATCHERY, Linesville, Pa.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize-winners. Eggs for hatching, \$2.00 for 13; \$4.00 for 30. E. B. BROWN, Box 323, White Plains, N. Y.

Poultry Paper, 44 125-page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

FOR SALE.—Winter-laying White Wyandottes. 200-egg strain, built up after years of careful selection and breeding from famous prize-winning stock. Setting eggs, \$1.50 to \$5.00 for 15 according to pen. Day-old chicks, in lots of ten or more, 25 cts. each. Place orders now for early delivery.

C. E. BLANCHARD, Youngstown, Ohio.

WANTS AND EXCHANGES

WANTED.—To buy potatoes in car lots.

F. W. DEAN, New Milford, Pa.

WANTED.—50 to 200 colonies of bees; mention price. A. DINGEMANSE, 125 Clayton St., Denver, Col.

WANTED.—A second-hand No. 4 Barnes hand and foot power saw rig. J. G. CRISLER, Walton, Ky.

WANTED.—To buy or lease, 100 to 200 colonies of bees and location. JACOB PROBST, East Nicolaus, Cal.

WANTED.—To exchange lath mill and bolter, 24-inch attrition feed-grinder, Economist steam-boiler, 12 H.P., for machinery to make honey-sections or engine lathe. GEO. RALL Mfg. Co., Galesville, Wis.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR RENT.—House and 4 acres of land on Lake Pasadena, 4 miles south of Dade City, Fla.
STEEN FREEMAN, Wamsley, O.

SOUTHERN LANDS are low in price, but high in productive value, make two to four crops a year, and give largest profits in grain, vegetables, fruits, live stock, and dairying. Unsurpassed climate, good markets. Publications on request.

M. V. RICHARDS, Commissioner,
Room 27, Southern Railway, Washington, D. C.

OHIO, WEST VIRGINIA, AND VIRGINIA FARMS of fer opportunities for you; \$20.00 per acre up. Easy payments. Mild climate. No long cold or hot spells. Social Life, Fertile Soil, good markets, high prices. On Railroad. Convenient to Trains. Write for free magazine and other information. F. H. LABAUME, Agr. Agt. Norfolk & Western Rwy., 246 N. & W. Bldg., Roanoke, Va.

MISCELLANEOUS

PAPAYA, "tree melon." Seed and magazine 3 mos., 15 cts. FULFORD FARMER, Fulford, Fla.

Maple syrup in 6-gal. lots at \$1.15; larger lots, lower price. L. W. KELLOGG, Rt. 1, Sharon Center, O.

White sweet clover, unhulled, recleaned, in good sacks, 60 lbs., \$7.00; 120 lbs., \$13.25; 500 lbs., \$52.50; 1000 lbs., \$100. F. O. B. Delta.

T. F. ENSLEY, Read, Col.

WAIT! Before ordering, get our 1916 pure-seed book, printed in four colors; describes our Royal Purple Grand Champion Pure Tested field, vegetable, and flower seeds, fruit-trees, vines, shrubs; plants at lowest wholesale cut prices.

GALLOWAY BROS., Waterloo, Iowa.

FOR SALE.—7000 lbs. unhulled white-sweet-clover seed in seamless sacks; 91 lbs. of seed for \$12.45; less than 91 lbs., 14 cts. per lb., and sacks, 25 cts.; 91 lbs. in a two-bushel sack is all the sample of seed needed. It is not crushed in unhusking; 30 lbs. per bushel is the standard for unhulled seed.

A. H. DAVIES, Whitewood, S. D.

Choice Santa Clara Valley Dried Fruit from grower to consumer at following prices, f. o. b. Saratoga: Prunes, 10-lb. sack, \$1.10; apricots, 10-lb. sack, \$1.35. Maximum express rate on dried fruit, 4 cts. per pound in U. S. except points served *only* by Southern Express Co. Mr. E. R. Root has visited our ranch, recommends our product, and vouches for our reliability. HERMAN A. CLARK, Saratoga, Santa Clara Co., Cal. See special notice, page 5.

BEEES AND QUEENS

FOR SALE.—Fifty colonies of bees.

J. R. MARVE, Bunceton, Mo.

FOR SALE.—175 colonies of bees with good location.

F. M. SNIDER, Colbran, Cal.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later.

N. FOREHAND, Ft. Deposit, Ala.

Bees by the pound shipped anywhere in the U. S. or Canada. Sound arrival guaranteed. Capacity, 100 lbs. a day. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—60 colonies bees, wired H. frames, modern equipment; no disease.

S. D. CLARK, Wezerhauser, Wis.

FOR SALE.—At a bargain, 100 colonies. Good location. Full sheets. Up-to-date outfit for extracted honey. 18626 "BEE MAN," Williamsport, Pa.

Northern-bred Italian queens, untested, \$1.00; select tested, \$1.50. Bees by pound. Safest plans. "How to Introduce Queens, and Increase," 25 cts. List free. E. E. MOTT, Glenwood, Mich.

WANTED.—Single man experienced in bee culture for coming season. Must understand bees in every form, and must not drink. White City Apiary, J. W. HATTS, Proprietor, Gunnison, Miss.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE, or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

FOR SALE.—25 hives Italian bees in Danzenbaker hives, \$4.00 per hive, with supers; nine colonies in eight-frame hives; all in good condition; no disease. B. F. HARFORD, bx 63, Asherville, Mitchell Co., Kan.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June, 75 cts. each; 6 for \$4.25; 12 for \$8.00. For larger lots write CURD WALKER, Jellico, Tenn.

Shipped one order of 409 lbs. of bees; 133 3-lb., and 2 5-lb. packages with queens. They go thru to party in Ontario, Canada, in fine shape.

M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found: each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

BEES.—250 colonies and equipment, near Sacramento. No disease. Also 40-acre mountain ranch in Sonoma Co., with virgin redwood trees up to 8 ft. in diameter; sell separately, or both for \$1600. E. L. SECHRIST, Fair Oaks, Cal.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE.—Northern-Ontario-Bee-Diseaseless-District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY CO., Haileybury, Ont.

We are booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young untested Italian queens, 75 cts. each, or \$8.00 per dozen. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

Having secured breeders of Dr. Miller we are offering daughters of his famous strain of Italians at the low price of \$1.50 each. Queens of our own strain at 75 cts. each; 1 lb. of bees, \$1.50; 2-frame nuclei, \$2.25; full colony in 8-frame hive at \$6.50; 10-frame, \$7.50; 200 colonies for spring delivery at \$6.00 each, 10-frame hives.

THE STOVER APIARIES, Mayhew, Miss.

A few choice three-banded Italian queens for early delivery. Booking orders now. Tested queens, \$1.50 each; breeders, \$5.00 to \$10. Untested, after March 15 to 25, \$1 each. O. E. MILAM, Moore, Tex.

M. C. Berry & Co., Successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list. write us. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—400 colonies Moore strain bees in good location. Combs built on full sheets of foundation. Everything in first-class shape. Principal source of honey is alfalfa. Located in the Rio Grande Valley, under the largest irrigation project in the United States.

THE CROWN APIARIES, Mesilla Park, N. M.

QUEENS.—Italians exclusively; golden or leather-colored. One select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen, \$1.25 after March 20. No reduction for less than 50; 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with ¼ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

FOR SALE.—Italian bees by the pound, and select-bred Italian queens. One-pound swarms without queens, \$1.25 each; 2-lb. swarms without queens, \$2.35 each; 3-lb. swarms without queens, \$3.35 each, and 5-lb. swarms without queens, \$5.35 each. If queens are wanted with swarms, add price as according to price list below. Untested, warranted purely mated queens, 75 cts. each; tested queens, \$1.25 each. All queens are bred according to our plan of breeding only from colonies or queens of the highest standard—those that have made the best record in pounds of honey. These select colonies are the choice of over 1000 hustling honey-producing colonies. Every queen we warrant to be purely mated or we replace her free of charge. Every pound of bees we guarantee to deliver alive and in good shape, and full weight. We have no disease. Safe arrival and satisfaction we guarantee on both queens and bees in packages. For prices on wholesale lots of either queens or bees by the pound,

M. C. BERRY & Co., Hayneville, Ala.

HELP WANTED

WANTED.—Young man to work with bees as an assistant, or one capable of taking charge of outyards. State age, experience, and wages expected. CHARLES ADAMS, Rt. 4, Greeley, Col.

WANTED.—Two young men to help in the apiaries for 1916; prefer young men who want to learn the bee business and are willing to work for reasonable wages and board. I want no one who smokes. Address P. O. Box 124, Watapo, Wash. 12658

WANTED.—A single energetic man, strictly sober, some experience with bees, to take charge of an apiary and small ranch on shares; possibility of running 400 colonies of bees. A splendid opportunity for capable party.

DR. W. M. COPENHAVER, Helena, Mont.

WANTED.—Robust western young man, of good habits, honest and industrious, at moderate wages and board, who has had some experience handling bees for extracted honey. State your case fully, give references, and wages expected, in first letter.

IRA C. FARNEY, Mesilla Park, N. M.

WANTED.—Experienced beeman familiar with conditions in Georgia or Florida, to handle 75 to 100 colonies, on share basis. Can be employed in orange-grove work, regular terms, when not busy with bees. Good opening for the right man. References required. Box 896, Sanford, Fla.

WANTED.—Two or three industrious young men, fast workers, and of clean mental and body habits, for the season of 1916. Will run between 1000 and 1200 colonies for the production of comb honey. Give age, weight, experience, and wages in first letter. White City Apiarist, J. G. WALLER, Rigby, Ida.

HELP WANTED.—Can take two clean minded and bodied young men as student help for the season of 1916. Board free for help given, and something more if a good season and help does well. One understanding an auto preferred. Address R. F. HOLTERMAN, Brantford, Ontario, Canada.

SITUATIONS WANTED

Single man, age 29, beekeeper, wants position in apiary. No bad habits. All letters answered.

M. McLOVICH, Box 243, Rock Springs, Wyo.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00, return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.

H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italian bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

TRADE NOTES

SOME BOOK BARGAINS.

We have four copies of the *Amerikanische Bienen-zucht* by Hans Buschbauer, a book on beekeeping written in German. Illustrated; 5½ x 8 inches; 138 pages. Cloth. Price, to close out, 25 cents each, postpaid.

"Bee Hunting," by J. R. Lockard, is a book of valuable information for bee-hunters; tells how to line bees to trees and transfer the colonies. Illustrated; 5 x 7 inches; 72 pages. Paper. Price, to close out, 25 cents postpaid.

The *Secrets of Success for Boys and Young Men*, by A. J. Kendall, M. D., is a late work of guidance on sex questions and other matters of hygiene. It has been highly endorsed by a number of eminent men and women; 4½ x 6½ inches; 128 pages; paper. To close out, 25 cents postpaid.

The *Standard Domestic Science Cook-book*, compiled and arranged by William H. Lee and Jennie

A. Hansey, a new and original system of classification with 1500 recipes. Just the thing for your wife. Illustrated; 6 x 9 inches; 550 pages. Cloth. To close out, \$1.00 postpaid.

The *Book of Wonders*, gives plain and simple answers to the thousands of everyday questions that are asked, but which all should be able to, but cannot answer. Fully illustrated with hundreds of educational pictures of the wonders of nature and civilization; 7 x 10 inches; 600 pages. Cloth. To close out, \$1.00 postpaid.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0147, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, 2½ x 10 hexagonal light medium-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0222, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0226, 2½ x 10 hexagonal medium-brood mill in fair condition; a few bruised cells. Price \$18.00.

No. 0230, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0231, 2½ x 10 hexagonal medium-brood mill in fairly good condition. Price \$20.00.

No. 0232, 2½ x 10 hexagonal medium-brood mill: not very good cells; somewhat bruised. Price \$15.

No. 0233, 2½ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, 2½ x 6 extra-thin-super mill in very good condition. Price \$12.00.

No. 0235, 2½ x 10 hexagonal light-brood mill in good condition. Price \$22.00.

No. 0236, 2½ x 6 extra-thin-super mill in good condition. Price \$12.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0240, 2½ x 10 medium-brood mill, hexagonal cell in fair condition. Price \$17.00.

No. 0241, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

THE A. I. ROOT COMPANY, Medina, Ohio.

I am Anxious to Serve You

L. W. Crovatt, Box 134 Savannah, Ga.

Root's Goods Exclusively

Warehouse, River and Abercorn Streets

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Beauty PATTERN

**Twenty-five Cents for New
Subscription to Gleanings
Six Months and Premium
Pattern**

Select any Pattern as premium, sending 25 cents in stamps for a new six-months' subscription to GLEANINGS IN BEE CULTURE. Be sure to give the pattern number and size desired, and the complete address of the new subscriber whose order you send.

Canadian postage, 15c extra;

Foreign postage, 30c extra.

Selling price of Patterns, 10 cents each.

**The A. I. Root Company
Medina, Ohio**

1622.—Girl's Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. It requires $2\frac{1}{2}$ yards of 44-inch material for a 4-year size. Price 10 cents.

1600.—Child's Envelope Night Dress. Cut in 5 sizes: 6 months, one year, 2, 4, and 6 years. Size 2 will require $2\frac{1}{2}$ yards of 36-inch material. Price 10 cents.

1627.—Ladies' Dress, with Body Lining or Yoke Portions. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $6\frac{1}{2}$ yards of 44-inch material for the dress, without ruffles. With ruffles, it requires 7 $\frac{7}{8}$ yards, for a 36-inch size. The skirt measures about 3 2-3 yards at its lower edge. Price 10 cts.

1610-1618.—Ladies' Costume. Waist 1610 cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It will require $2\frac{1}{2}$ yards of 44-inch material for a 36-inch size. Skirt 1618 cut in 6 sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. It requires $4\frac{1}{4}$ yards of 44-inch material for a medium size, which measures about 3 2-3 yards at the foot. This calls for two separate patterns, 10 cents for each pattern.

1626.—Junior's Suit. Cut in 3 sizes: 12, 14, and 16 years. Size 14 requires $4\frac{1}{2}$ yards of 44-inch material. Price 10 cents.

1608.—Girl's Dress. Cut in 4 sizes: 6, 8, 10, and 12 years. Size 14 requires $4\frac{1}{2}$ yards of 36-inch material for a 10-year size. Price 10 cents.

1604.—Ladies' Apron with or without Belt. Cut in 3 sizes: Small, medium, and large. It requires $4\frac{1}{2}$ yards of 36-inch material for a medium size. Price 10 cents.

1319.—Ladies' House Dress with or without Yoke. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $5\frac{1}{4}$ yards of 44-inch material for a 36-inch size. The skirt measures 3 yards at its lower edge. Price 10 cents.



"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

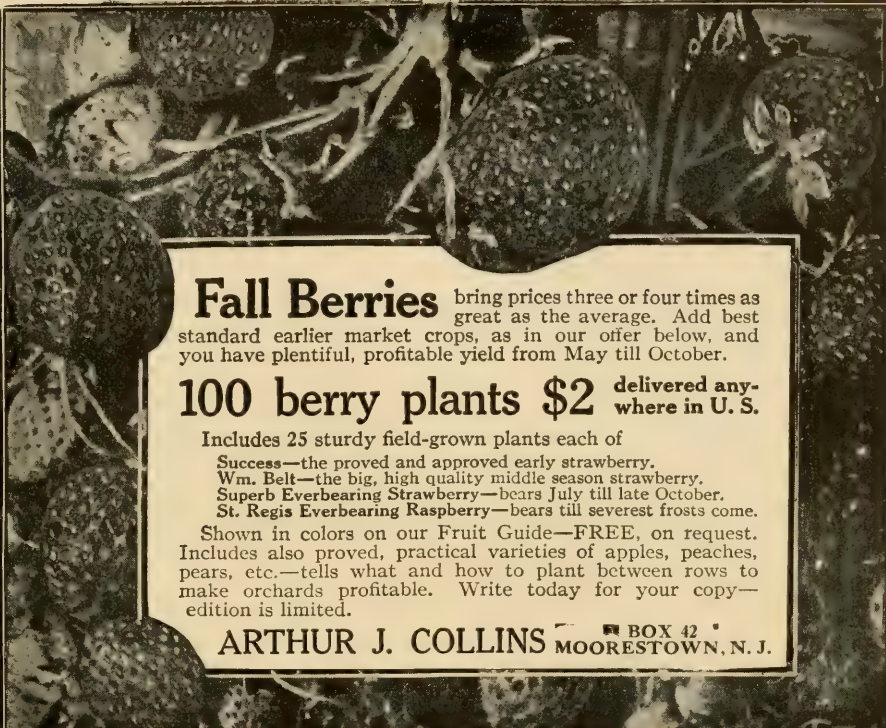
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Fresh
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Fall Berries bring prices three or four times as great as the average. Add best standard earlier market crops, as in our offer below, and you have plentiful, profitable yield from May till October.

100 berry plants \$2 delivered anywhere in U. S.

Includes 25 sturdy field-grown plants each of

- Success—the proved and approved early strawberry.
- Wm. Belt—the big, high quality middle season strawberry.
- Superb Everbearing Strawberry—bears July till late October.
- St. Regis Everbearing Raspberry—bears till severest frosts come.

Shown in colors on our Fruit Guide—FREE, on request. Includes also proved, practical varieties of apples, peaches, pears, etc.—tells what and how to plant between rows to make orchards profitable. Write today for your copy—edition is limited.

ARTHUR J. COLLINS  **BOX 42** **MOORESTOWN, N. J.**

Planet Jr. Farm and Garden Tools

cut down work and boost your crops

Old-time farming no longer pays—these scientific tools do the work of 3 to 6 men, give bigger yield, and save their cost in a single season. Invented and made by a practical farmer and manufacturer, with half a century's experience. Planet Jrs are strong and lasting. Every tool fully guaranteed.

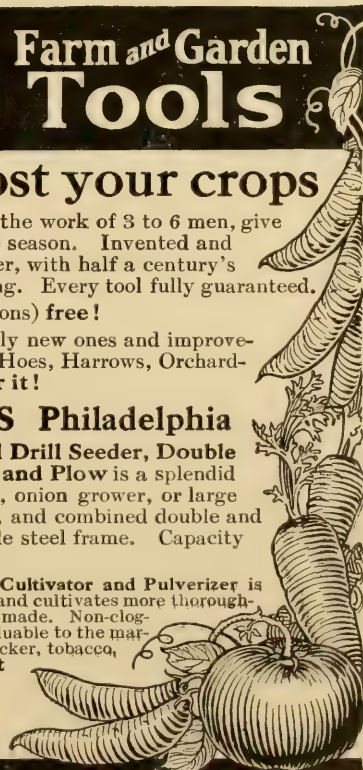
72-page Catalog (184 illustrations) free!

Describes over 70 tools, including 12 entirely new ones and improvements to our Seeders, Wheel-Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it!

S L Allen & Co Box 1106S Philadelphia

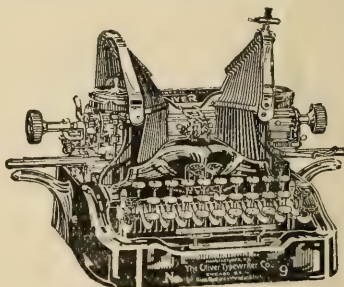
No. 25 Planet Jr Combined Hill and Drill Seeder, Double and Single Wheel-Hoe Cultivator and Plow is a splendid combination for the family garden, onion grower, or large gardener. It is a perfect seeder, and combined double and single wheel-hoe. Unbreakable steel frame. Capacity — 2 acres a day.

Planet Jr 12-tooth Harrow, Cultivator and Pulverizer is stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Non-clogging steel wheel. Invaluable to the market-gardener, trucker, tobacco, or small-fruit grower.



A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

Caution!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hand. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

17 CENTS A DAY! Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features. Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

TODAY---Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

Warning!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

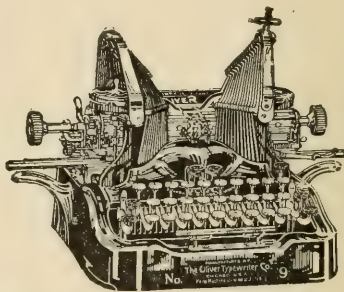
If you are using an Oliver, it naturally follows that you want the finest model.



Cleanings in Bee Culture

A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

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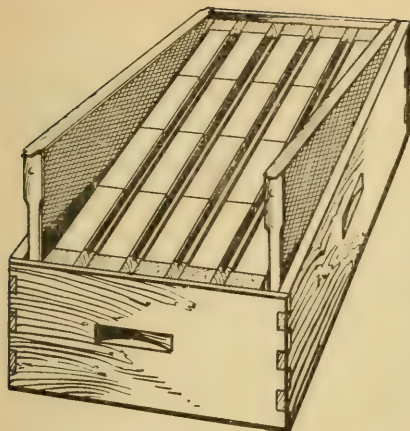
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946 Prospect Avenue



The "F" Super and Its Advantages

The "F" Super is one of the new improvements which we have added to our line. It consists of a super holding 4 x 5 x 1 1/2 plain sections, and can be furnished in either eight or ten frame size. The eight-frame super holds 28 sections and the 10-frame 32 sections. This super is unlike many of the supers on the market, as it takes standard equipment and offers the beekeeper who at any time might care to change over to extracted honey an exceptionally good item.

It can be used for extracted honey by purchasing 5 1/2-in. frames which will fit the inside of the super, or it can be used for comb honey. This saves the beekeeper from purchasing a whole new outfit should he ever care to change over to extracted honey, and at the same time gives him an A1 comb-honey outfit for the same price as a comb-honey super can be purchased.

Any row of sections can be taken out and replaced with a shallow frame without making any other changes or adjustments. Some of our customers who have been substituting the shallow 5 1/2-inch extracting-frames on each side or in the middle are inclined to believe the bees enter the super much quicker.

Prices of the "F" super will be gladly furnished upon application.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12 1/2 oz. net or 13 1/2 gross. The top of each section in this grade must be stamped, "Net weight not less than 12 1/2 oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells, all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

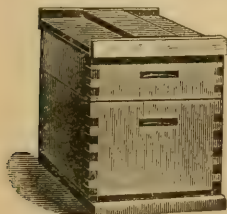
Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



Early-order Discounts will

Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 1913

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-AM), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

KANSAS CITY.—The supply of comb honey is not large, and the demand is light. The supply of extracted is large and the demand very light. The market is really overstocked. We quote No. 1 white comb, 24 sections per case, \$3.00; No. 2 ditto, \$2.75; No. 1 amber ditto, \$2.75 to \$3.00; No. 2 ditto, \$2.50 to \$2.75; No. 1 white extracted, per lb., 7½ to 8; amber ditto, 6 to 7; No. 1 beeswax, 28; No. 2, 25. C. C. CLEMONS PRODUCE CO.
Kansas City, Feb. 16.

BUFFALO.—Business in honey in this market is small. The retail trade is fully as good as usual at this time of the year. A great many of the retailers send to the country for their supply, thinking they can buy cheaper from the producer. The demand here is about equal to the supply in good white comb, lower grades pretty slow; extracted slow sale, unless offered at very low price. Choice to fancy white comb brings 15 to 16; No. 2 and 3, 10 to 12; extracted white, 7 to 9; dark, 6 to 7. Beeswax, 28 to 30.
Buffalo, Feb. 19. W. C. TOWNSEND.

NEW YORK.—The market on comb honey is practically at a standstill at present, and of late the demand has been next to nothing, there being some little demand, however, for No. 1 and fancy white, but there is no demand for off grades whatever. Our stock is not heavy, but it is more than sufficient to fill the present demand. We have letters coming in right along from producers asking what we can get for comb honey, and we write them that, as the season is practically over, we would not feel justified in stocking up. As to extracted, the market is in pretty good shape, with a fair demand. There seems to be plenty of supply of all kinds, with the possible exception of California water-white sage; but we would not encourage shipments without first writing us. We quote nominal: California, 6½ to 8, according to quality; clover and basswood, 7½ to 8; off grades, amber and light amber, 6½ to 7; buckwheat, 6 to 6½; West Indian, 55 to 65 per gallon, according to quality. Beeswax is in fair demand from 29 to 30.

New York, Feb. 17. HILDRETH & SEGELKEN.

Honey reports continued on page 5.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

**LEWIS' BEEWARE, DADANT'S FOUNDATION,
ROOT'S EXTRACTORS, SMOKERS, ETC.**

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

QUEENS FOR EARLY SPRING DELIVERY

We conduct a Bee and Queen Rearing Business in Florida during the winter, and at Canton, Ohio, during the summer. We now have a carload of selected Italian Bees in Florida for the purpose of supplying you with Bees and Queens for EARLY SPRING DELIVERY. WE GUARANTEE PURE MATING AND SATISFACTION IN EVERY RESPECT, OR MONEY REFUNDED. We are breeding from Queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. Will it not pay you to have this strain of bees in your yard? Prices as follows:

ISLAND-BRED ITALIAN QUEENS.

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens,
\$5.00 and \$10.00 each.

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus....	\$2.00	Three-frame Nuclei ...	\$4.00	Eight-frame Colony...	\$ 8.50
Two-frame Nuclei	\$3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

Address all communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
1/2-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

"A Square Deal"

Markham Ont., Oct. 1, 1915.

Mr. H. D. Murry, Mathis, Texas.

DEAR MR. MURRY:—As I have used quite a number of your queens during the last three seasons, I thought you might be interested to know how they have turned out. They have given universal satisfaction, and in only three or four cases in this time have any queens shown to be defective. In each case such queens were promptly replaced. While the queens have given satisfaction, that is only one factor that pleases me in my dealings with you, as during all the time I have had business connections with you promptness in answering letters, and other features that go to make the ordinary routine of business a pleasure have always been in evidence. While I feel that I can confidently recommend your queens as being satisfactory in every way I certainly can also assure prospective customers that they can be sure of a "square deal" every time they do business with you.

J. L. BYER.

Starting twenty years ago with queens from H. L. Roby, of Worthington, W. Va., and later securing a fine breeder from J. P. Moore, Morgan, Ky., then by constantly, carefully selecting by breeders from the colonies giving the best yields of honey and showing the most desirable traits otherwise, I have built up a strain of bees unexcelled for beauty, gentleness, and honey-producing qualities. Please write me your needs for this season in the way of queens, nuclei, and bees by the pound, and I shall be pleased to give you prompt and satisfactory service. Three-banded Italians. No disease. Tested queens in March; untested queens after April 1. Prices before May 1: Tested queens, \$1.25 each; \$1.00 per dozen; untested queens, \$1.00 each; \$10.00 per dozen.

H. D. Murry, Mathis, Texas

If Your Bees Have Foul Brood

Get my queens. Three-band and Golden Italians.

One Untested Queen, \$1.00, six, \$5.00. One Tested Queen, \$1.50; six, \$8.00. One-frame Nuclei, \$2.00; 2-frame, \$3.00. Add price of queen wanted.
1/2 lb. bees, \$1.50; 1 lb., \$2.50.

W. J. LITTLEFIELD, LITTLE ROCK, ARK.
414 West 7th Street

Three-band Italian Queens

My queens are bred from imported mothers.

They are the best for honey-gathering and gentleness.

I fill orders as promptly as possible.

GUARANTEE that all queens will reach you in good condition, to be purely mated, and will give perfect satisfaction.

PRICES --- April 1 to July 1

Untested	one, \$0.75; six, \$4.25; doz., \$8.00
Select Untested	.90 5.00 9.00
Tested	1.25 7.00 13.00
Select tested	2.00 11.00 20.00

L. L. Forehand, Fort Deposit, Ala.

Do You Need a Queen for that Queenless Colony?

We can furnish tested Italian queens by return mail, \$1.00 each. These queens are not cull nor inferior in any way because they are cheap. They were reared last September and October, and wintered in four-frame nuclei expressly for our early spring trade in tested queens. We expect to have untested queens ready to mail about April 10; \$1.00 for single queen; \$9.00 per dozen. We began rearing queens for sale in 1886. Our strain of three-band Italians is well known to leading beekeepers. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. We solicit your orders.

J. W. K. Shaw & Co., Loreauville, Louisiana



ITALIAN QUEENS THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street

Gleanings in Bee Culture

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A. I. ROOT

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H. H. ROOT

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J. T. CALVERT

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Honey reports continued from page 2.

INDIANAPOLIS.—The demand for honey the past week has been unusually good, more especially comb. We are selling No. 1 or choice white comb at \$3.75 to \$4.00 per case; No. 2 white comb at \$3.50. Extracted of best quality is bringing 9½ to 11. We are paying 28 cts. cash or 30 in trade for good average wax delivered here.
Indianapolis, Feb. 18. WALTER S. POWDER.

CHICAGO.—During the past few days there has been more movement in honey than for some weeks past, which, of course, is usual at this time of the year; prices, however, are weak. Best grades of white comb honey are selling at about 15 cts. per lb., with the amber and off colors at from 1 to 3 cts. per lb. less; extracted white, 7 to 8, according to the kind and quality. Amber grades range at from 6 to 7. Beeswax is steady at 30.
Chicago, Feb. 16. R. A. BURNETT & Co.

DENVER.—Local demand for comb honey is light, with ample supply. We art selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1 per case, \$2.93; No. 2 per case, \$2.70; white extracted, 8½ to 8¾; light amber, 8 to 8¾; amber, 7 to 8. We pay 25 cts. per lb. in cash and 27 in trade for clean yellow beeswax delivered here.
THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Feb. 19. F. Rauchfuss, Mgr.

ST. LOUIS.—The demand for both comb and extracted honey in this market is still very light, and stocks quite large for this time of the year. We are still quoting light amber comb honey, in 24-section cases, at \$3.25 to \$3.50. Amber from \$2.50 to \$3.00; extracted honey in 60-lb. cans, from 5 to 8½; Southern amber extracted in barrels, 5 to 5½, according to quality. Beeswax is firm at 28½ for pure; impure and inferior, less.
St. Louis, Feb. 18. R. HARTMANN PRODUCE CO.

ALBANY AND SCHENECTADY.—Lower prices have stimulated the demand for honey, and it looks now as tho the market will be well cleaned up, and no stock to carry over. In fact, there is a scarcity already of buckwheat, both in comb and extracted; this will help out on clover. We quote fancy white at 13 to 15; midium grades, 10 to 12; buckwheat, 12 to 13; extracted, light, 7 to 8; amber, 6 to 7; buckwheat, 6½ to 7.
ALBANY AND SCHENECTADY, Feb. 18. CHAS. MACCULLOCH.

ZANESVILLE.—There is little change to report since last quotations. For the season the demand is about normal and price about stationary. Better grades of white comb go to the retail grocery trade at \$4.00 a case with some concession on quantity orders. Best white extracted, 9 to 11, according to quantity. Twenty-eight cents cash, 30 in trade, is paid producers for beeswax, selling prices being largely arbitrary, and varying with quantity.
Zanesville, Feb. 18. E. W. PEIRCE.

**Spray
Your
Crops**

KANT-KLOG SPRAYER

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.
Rochester Spray Pump Co.
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Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

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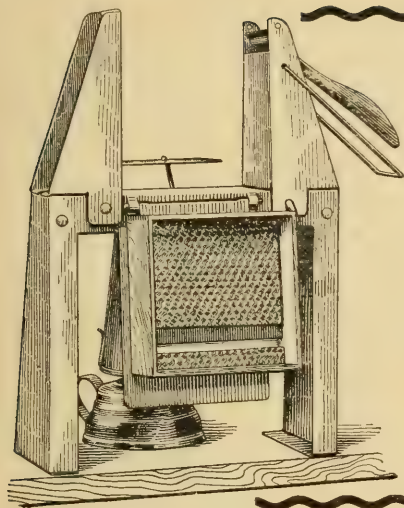
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and prices from which an order
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(Signed)

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Amber honey, 7½ cts. pound; light honey, 8½ cts. pound. Catalog free.

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“Root Quality” equipment means BEST QUALITY equipment. The Root bee supplies are up to the minute. The most complete line of bee supplies made.

We sell Root's Goods in Michigan. Order from Root catalog, or we will quote on request. March cash discount, 1 per cent. Beeswax wanted.

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We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

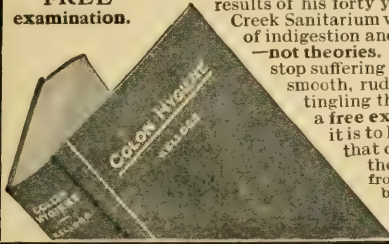
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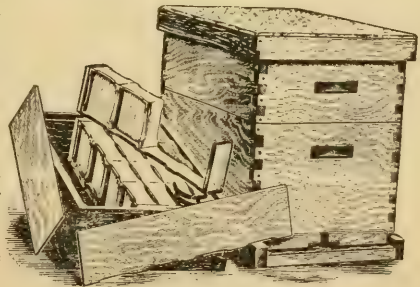
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Surest Protection for Bees—Increased Supply of Honey—the Best Hive for any Climate



The Massie Hive for Comb or Extracted Honey

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THE VENTILATED BOTTOM admits fresh air into the hive, lessening the chance for swarming, and gives renewed energy to the bees. It is also equipped with a feeder without extra cost. Fifty years in the bee-supply business has shown us that the MASSIE is THE VERY BEST HIVE, and testimonials to this effect are received daily from those who are using this hive.

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FROM CALIFORNIA: "Much pleased with your 1916 catalog. Other catalogs are all right for the man who knows the goods and knows just what he wants. Your cuts, description, and arrangements are so good they will give delight to the amateur or the one who wants to know in detail of new things."

FROM MARYLAND: "We are in receipt of your 1916 catalog and wish to compliment you on same."

FROM TEXAS: "Have heard quite a good many expressions from beekeepers who have received a copy of the 1916 Lewis Catalog, commenting on the beauty of this catalog and upon its improvement over any catalog they have ever seen."

FROM WISCONSIN: "Received your 1916 catalog. It is a dandy."

FROM NEW YORK STATE: "Congratulate you on its neat appearance. Each season it is a little better than the preceding one."

Send Right Now for a New Lewis Catalog

Here are Only a Few of the Distinctive Features Contained in It:

Our NEW METAL-BOUND DIVISION-BOARD in the full-depth size is to be found illustrated, described, and listed.

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A WOVEN WOOD-AND-WIRE CHEST, which is a low-cost article with many uses, is illustrated and described.

One page is given over to the RAUCHFUSS FOUNDATION CUTTING-BOX, a practical little outfit for the beekeeper.

Two other articles, a SECTION-HOLDER NAILING-FORM and FRAME WEDGE-DRIVER are offered.

Two whole pages of INSTRUCTIONS TO BEEKEEPERS, by C. P. Dadant, will be found interesting to the old beekeepers as well as the new.

One page devoted to the PROSPECTIVE BEEKEEPER is very interesting, and many new thoughts are presented.

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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

MARCH 1, 1916

NO. 5

EDITORIAL

WHO can send in a good photograph of an exhibit of bulk comb honey, in glass, if possible for publication in our July 1st issue? A subscriber requests information about the exhibiting of bulk comb honey.

Our Cover Picture

THE illustration on our cover for this issue shows David Running's concrete honey-house, work-shop, and cellar. The entrance to the latter is in a side hill, as shown—a most convenient arrangement. Mr. Running's description of the building, with two other illustrations and plans, appears on another page.

This Honey-house Number

IF the reader of these pages ever expects to go into beekeeping extensively enough to need a building aside from some woodshed or room in his private house, he will do well to lay this number aside and keep it for future reference. It contains nearly every feature useful in a honey-house, bee-house, or house-apiary; and at the same time it shows the arrangement of the hives in the yard with reference to the building. Wherever possible, it is advisable to put the apiary on a slight grade, and the building on the edge of a side hill. In this way the loads of honey, as Mr. Chadwick points out, will run down grade into the building. If the honey-extractor is on the side of the building that stands up on stilts, the honey can be run by gravity into a receiving-tank below. If this is elevated above the height of the wagon-box plus the height of a 60-lb. square can, one can draw his honey into the can and put it on the wagon without any lifting.

During the winter months beekeepers will do well to make their plans, if possible, to

get the building erected before the active bee season begins.

Of course, where ground is on a level, as it is in most cases, one will be compelled to use a honey-pump.

Prospects for the Next Season's Honey Crop from Clover and Basswood Good

MR. FRANK McNAY, formerly of Mauston, Wis., but of late years of Pasadena, Cal., remarked to us last winter when we were visiting at his place that he thought he could explain why basswood and clover would yield some years and not others. Said he, "If the ground freezes wet there will be honey; but if it freezes dry there will be no honey." This winter it froze wet, and it has been staying wet in practically all the clover and basswood regions of the northern states. If Mr. McNay's rule holds true, 1916 will be a bumper year for the clovers and basswood, provided, of course, no drouth sets in in the early part of May and June. It is to be hoped that the coming summer will not be exactly the reverse of the last one.

The Advantages of House-apiaries

WE would call attention particularly to Mr. E. C. Barber's article in this issue describing his beehouse and workshop. The house-apiary side of it shows some very excellent features—features that could be adopted to advantage in a house-apiary containing many more colonies than are provided for in this.

The scheme of furnishing light and ventilation by means of swinging sash is as good as anything we have seen. When one works inside of a building the bees will sometimes fly off the combs and drop down on the floor. By tilting the sash the bees usually fly to the window and escape. The

plan of painting the entrances different colors, while not new, is good.

At the close of the article Mr. Barber gives some reasons for preferring the indoor plan of keeping bees. Every one of them is good. Except for the expense of a building of this kind we do not know but we would rather keep bees this way than by the usual plan outdoors.

The Pendulum Always Swings Back

SOME years ago an analysis of the honey market revealed the fact that comb-honey prices were firmer than those of extracted. So many large producers had changed over from comb to extracted, that comb honey at certain seasons of the year was a scarce article. Noting this, GLEANINGS urged the production of more comb honey, believing that the general market would be better balanced thereby.

It now appears that the pendulum may be swinging back again toward the other extreme. At least, there seems to be quite a large amount of comb honey in many of the principal markets which is moving but slowly and at a rather low price proportionately. Comb honey, while not a perishable product, is more likely to deteriorate if kept too long. We believe the 1916 market would be better balanced if a somewhat greater proportion of extracted honey were produced.

A Memorial to Joseph E. Wing, the Apostle of Alfalfa and Sweet Clover

The following, from the *Rural New-Yorker*, will explain:

Here is something for those who knew and loved Joseph E. Wing, of Ohio. Since his death a fund has been raised by popular subscription for a memorial to this great agricultural teacher. The money is to be used to provide lectures on agriculture at one or more of the agricultural colleges each year. It is to be known as the Joseph E. Wing Memorial Fund Lecture. Men of national reputation will attend each year and discuss the things which Joe Wing stood for. It is better to have many persons each contribute small sums to such a fund, and we have no doubt some of our readers will want to help. If so, they can write direct to H. C. Price, Newark, Ohio—the chairman.

GLEANINGS most heartily joins in this, and hopes its subscribers, especially those in the West, who have profited by Mr. Wing's work in the extension of alfalfa,

thereby creating new bee territory, will contribute to this fund.

As stated by the *Rural*, it is better to have many persons each contribute a small sum than to have a large amount from a few sources. If there ever was a man in this country who helped give untold wealth to the western prairies and desert lands, Mr. Wing was that man. He did much thru his advocacy of alfalfa and sweet clover to develop the honey industry, too, in an indirect way, in that thousands of carloads of alfalfa and sweet-clover honey are now produced in localities that furnished no honey before. He was also an advocate of sweet clover; and a month or so before he died he suggested that we get after a certain experiment station that was advising the farmers to kill sweet clover everywhere, saying that it was a noxious weed; and we did go after them by telling them they must have been asleep along with Rip Van Winkle, and that it was now time for them to wake up.

Under Such Circumstances Don't Kick the Barrel

FROM the *Atlanta Constitution* we learn that bees are likely to figure in a trial before the supreme court of Georgia.

It seems that "an Atlanta negro, Roscoe Richards, was standing last summer over a barrel full of watermelon rinds. The barrel was also full of bees feeding on the rinds, a fact which Roscoe didn't know. As he bent his head down into the barrel to see if there weren't something worth picking up, another negro kicked the barrel. The bees arose angrily and alighted all over Roscoe's ebony head and face.

"Roscoe turned over in the air; but when he alighted he came down like a cat on his feet, and his razor was already out and open. He is said to have attacked the other negro, and literally cut him to pieces. Richards employed lawyers; and when the case came to trial recently, he pleaded not guilty, and interposed the simple plea of 'self-defense.'"

The Work that has been done by the Bureau of Entomology in the Line of Apicultural Inspection Work

It has been our pleasure to note an editorial in the *Entomological News*, referring to work done by the Bureau of Entomology, Washington, D. C., under Dr. E. F. Phillips, and particularly to the work done by one of his assistants, Dr. James A.

Nelson. We are pleased to present a portion of what the *Entomological News* has to say.

The Embryology of the Honey Bee. By James Allen Nelson, Ph.D., Expert Bee Culture Investigations, Bureau of Entomology, U. S. Department of Agriculture. Princeton University Press, Princeton, October, 1915, 12mo. Pp. vi, 282; 95 text figs., 6 plates; \$2.00 net. The broad and comprehensive way in which the bee-culture investigations of the Bureau of Entomology have been considered and treated since Dr. Everett Franklin Phillips was placed in charge of them in 1907 is strikingly illustrated by the publications which have emanated from the investigators concerned. Snodgrass has given us the results of a careful and original re-examination of the anatomy of the honeybee; Casteel has corrected our notions of the manipulation of the wax scales and the behavior of the bee in pollen collecting; McIndoo has informed us on the olfactory sense and on the scent-producing organ; Phillips, C. A. Browne, B. N. Gates, G. F. White, and G. S. Demuth, singly or in conjunction, have dealt with various practical phases of apiculture and especially with bee diseases, while Phillips has summed up these and other researches and experiences in a recent volume in *The Rural Science Series*. Now comes the still more esoteric volume on the embryology of the honeybee. The keynote to all this work is in the first sentence of the preface contributed by Phillips to Nelson's book before us: "The good beekeeper is he who is interested not only in those things which have to do directly with the production of honey, but to whom everything pertaining to honeybees has a deep interest." The conception that "everything pertaining to honeybees" should include an extensive and intimate knowledge of structure, physiology, behavior, and embryology exhibits a breadth of view which it is a pleasure to emphasize in a journal devoted rather to pure than to applied entomology.

Butschli (1870), Kowalevski (1871), Grassi (1884), Blochmann (1889), Petrunkevitch (1901, 1903), Dickel (1903), and Nachtsheim (1913) have described various phases of the development of the egg of the honeybee; but Nelson's work is more extensive and thorough-going than any of these, altho it is devoted to the embryonic history of the workers and queens only, not of the drones.

The Massachusetts Convention and the Spraying Situation

WE wish to call especial attention to the program of the annual beekeepers' convention at the Massachusetts Agricultural College, March 14, 15, 16. A complete program of this convention is given under Convention Notices on another page of this

issue. One of the chief subjects for discussion, and one which should interest every beekeeper and fruit-grower, is the subject which will be discussed in the Beekeepers' Round Table on "Spraying Practices versus Beekeeping." The Round Table discussion on this subject is an effort to bring out various aspects of a problem confronting the beekeepers of the country as a whole. First, Dr. Burton N. Gates will present "The Beekeepers' Standpoint." Second, such evidence as has been obtained by the chemist, which bears upon the possibility of bees being killed by arsenical sprays, will be presented by Dr. E. B. Holland, chemist. Third, the horticulturist who is obliged to spray in order to control insect pests will present his side of the question, stating, doubtless, how his practices may be adapted so as not to conflict with the beekeepers' interests. He will also, possibly, explain the relationship of his spraying methods to the insects which are being combated. W. W. Chenoweth will present this phase of the situation. Fourth, the forest entomologist will explain his policy in similarly combating insects, and suggest any method which may be carried out in an effort to obviate a conflict with beekeeping interests. A. F. Burgess will consider this phase. Fifth, Fred Southard will present the side of the municipal forester, and will endeavor to determine how the different varieties of shade-trees in towns and cities may be sprayed for insect control without working harm to the beekeeping interests. Sixth, a final discussion will take place in which it is hoped that prominent beekeeping authorities will take a leading part.

It is hoped that the material which is prepared for this occasion will be reported and presented in form for publication, in order to be available for beekeepers and spray men the country over.

The Opening-up of More Bee Country by the Purchase of Territory by the United States in Northwestern Mexico

OUR readers have already been informed of the wonderful bee country known as the Imperial Valley in southern California. This country, formerly a desert, has, by irrigation, been opened up so that now it is one of the most productive of any region in the United States. It is said to have land equal to that in the Nile Valley in Egypt. But it appears that there are thousands of acres beyond the boundary line that are just as good, and which Uncle Sam is desirous of purchasing, and which Mex-

ico, in her present impoverished condition, is equally anxious to sell.

For some reason which no one is able to explain satisfactorily, except thru the agency of bad diplomacy and crooked politics, the southern boundary line of the United States takes a sharp dip upward, thereby missing some of the best soil on the continent. Had the original boundary been carried down along the line of parallel 32, the area of the Imperial Valley would have been much larger than it is. It would make available thousands and thousands of acres of land that would open up good bee locations, and which would be as good as any territory now in the United States.

Two bills are now before Congress providing for the purchase of Lower California, that large peninsula that extends southward for 800 or 900 miles, and also for the purchase of that strip which bars us from the Gulf of California.

In view of the fact that this opens up some beautiful bee country our subscribers, especially those in the West, are urged to write to their Senators and Representatives in Congress, urging them to support and vote for these two bills. According to a writer in the *Independent*, Mr. Edwin E. Slosson, "It is an exceptionally favorable time to secure these much-needed accessions to our territory now when the presidency of Mexico is held by a man who owes his position to American support, and when the Powers whose ambition such action would thwart are occupied elsewhere. . . . The money we would pay for it would be very welcome to Mexico, now impoverished by five years of anarchy."

There certainly can be no objection to the acquisition of additional territory to the United States by honorable purchase, whatever we may think of the present policy of the warring nations in Europe in the line of land-grabbing simply because they are big and powerful.

This crooked boundary line which, early in the '50's, took a sharp dip northward, goes back to some crooked history on the part of some of Uncle Sam's diplomats in the early days. During those times Daniel Webster did some things that will not go down very greatly to his credit. According to Edwin E. Slosson, already referred to, the children who are now studying United States history will come to regard Daniel Webster as the New Yorkers now regard Benedict Arnold.

It is going to cost millions and millions to undo the work of Webster and some of his colleagues.

There are additional reasons why we

should have the Gulf of California and Lower California, because it is apparent that Japan and Germany have been looking with covetous eyes on this part of the world. Mexico is too weak to protest against either of them establishing coaling-stations there; and if Uncle Sam acquires the territory it will end all possible chance of international complications over the Monroe doctrine, because it is to be presumed that neither of the nations mentioned will attempt to put foot on our territory when once acquired.

Imports of Honey; Why the Price of Domestic Honeys of Lower Grade is Down and Markets Slow

THE general belief that the low prices received for southern extracted honeys of low grade have been caused by increased imports of low-grade extracted from Latin America is confirmed in Bulletin No. 325 published by the Department of Agriculture.

During the fiscal year ending June 30, 1915, the United States imported three times as much honey from foreign countries as had been imported in any previous year. The total foreign imports for the five fiscal years ending June 30, 1910 to 1914, were 104, 113, 115, 116, and 75 thousands of gallons, as compared with the 303,965 gallons imported in the fiscal year ending in 1915. The value of the imports for last year totaled \$124,843.

This change has been due to the war in Europe which closed to commerce certain of the countries which had been heavy buyers of Latin American honey. The beekeepers left without a market shipped the product to the United States.

The bulletin sums up the statistics in the following conclusions:

"Compared with the total production of the United States as reported by the census, the heavy imports for the present fiscal year, which from all sources probably total over 600,000 gallons, are therefore about 12 per cent, though probably less, if compared with the actual production. Compared with the portion of the home crop actually marketed, however, the percentage would be much larger, and its absolute bulk compared to the quantity of low-grade extracted honey produced here for market is so great that it has seriously interfered with the marketing of the latter, and, combined with the financial depression in the South, where the lower grades are largely produced and consumed, has forced the prices of such

grades to extremely low figures. The heavy inward movement of foreign honey shows no present signs of abatement and must be accepted as a probable factor for some time to come."

Before hasty proposals to raise the tariff on foreign honey are broached, it should be remembered that Porto Rico and Hawaii, insular possessions of the United States, together exported to this country during the fiscal year of 1915 more than the total imports from foreign countries combined. Consequently any tariff legislation directed against foreign honey could not affect the larger part of the imports. The imports from the island possessions have arisen so high during the last two years that, even if practically all foreign honey were shut out, it would be impossible to reduce the total imports to what they were in 1912 or 1913.

The new bulletin will be found of interest to beekeepers generally, and may be obtained from the Superintendent of Documents, Washington, D. C., at five cents a copy.

The Lament of Job, Again; What is the Matter with the Alexander Treatment for the Cure of European Foul Brood?

The following letter, received from Mr. Pressler, of Pennsylvania, will explain:

Mr. Editor:—In your editorial, page 89, entitled "Lament of Job," you wish to know if there is any one who has been able to stamp out absolutely European foul brood. Then you say, "How about it, Dr. Miller?" I believe that precludes all but the old Nestor of bee lore. What is the matter with hundreds of men like Dr. Alexander, scientific in more than one of the many branches? If Dr. Holtermann wants to know if "any one" ever succeeded, let him come right here to Williamsport. I can take him 14 miles east of here, where the first beekeepers' association was organized in this state for the purpose of checking the spread of this disease. This culminated subsequently in the formation of the state organization here in our court-house, with the writer as presiding officer. At that time every yard was infected in this county, including thousands of colonies, and now I am satisfied not a cell abounds. All were cured absolutely, and without the loss of a single dollar other than labor, and at first a few dollars for experimenting on formaldehyde gas.

Ellis E. Pressler.

Williamsport, Pa., Feb. 8.

No, Dr. Miller is not the only one who is invited to tell how we can cure European foul brood absolutely, without leaving a trace of the disease behind. If we are cor-

rectly informed, some who have tried the Alexander plan have found that the disease came back again. Others report that it worked successfully. This treatment as Mr. Alexander gave it out a few years ago, and that proved to be such a great success with him and many of his followers, was as follows:

Go to every diseased colony you have, and build it up either by giving frames of maturing brood or uniting two or more until you have them fairly strong. After this go over every one and remove the queen; then in nine days go over them again, and be sure to destroy every maturing queen-cell, or virgin if any have hatched. Then go to your breeding queen and take enough of her newly hatched larvæ to rear enough queen-cells from which to supply each one of your diseased queenless colonies with a ripe queen-cell or virgin just hatched. These are to be introduced to your diseased colonies on the twentieth day after you have removed their old queen, and not one hour sooner, for on this very point your whole success depends; for your young queen must not commence to lay until three or four days after the last of the old brood is hatched, or 27 days from the time you remove the old queen. If you are very careful about this matter of time between the last of the old brood hatching and the young queen commencing to lay, you will find the bees will clean out their breeding-combs for this young queen, so that she will fill them with as fine healthy brood as a hive ever contained. This I have seen in several hundred hives, and have never seen a cell of the disease in a hive after being treated as above described.

It is not necessary to remove any of the combs or honey from the diseased colony; neither is it necessary to disinfect any thing about the hive. Simply remove the old queen, and be sure the young queen does not commence to lay until three or four days after the old brood is all hatched. This treatment with young Italian queens is a perfect cure for black brood.

In addition to the foregoing letter we have received a large number of other communications—so many, in fact, that we are not able to give space to many of them; and what we do publish will have to be condensed. We may say, in the mean time, that one of our correspondents in Canada believes that European foul brood is one of the worst scourges that ever visited this country. He says he has had extended experience with it, and thinks the only way to get rid of it is to burn every colony—hives, bees, combs, and all. If it gets a start in the apiary he would burn the whole yard. He would favor legislation to compel every beekeeper to exterminate colonies affected with this scourge.

Another correspondent believes that, in addition to requeening, the McEvoy treatment with two shakings should be used, and the hives disinfected.

Quite a large number, including Mr. Pressler, believe that the Alexander treatment is quite effective.

We are surprised at the amount of testimony that seems to favor Dr. Miller's views as expressed in one of his Stray Straws in this issue—namely, that it is not necessary to destroy the combs. In the midst of the mass of this conflicting testimony the reader will have to exercise his judgment in the matter so far as the law and the inspectors will permit.

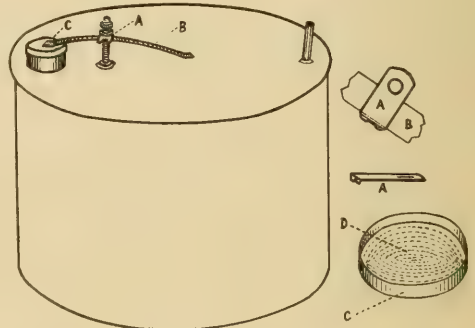
In the mean time the reader is referred to one of Dr. Miller's paragraphs on this subject in this issue that is characteristic of the man. Verily, the sage of Marengo will never grow old. If there was ever a man who is able to carry a smile into printed matter it is he.

A Safety-first Safety-valve

Two beekeepers have had trouble with their steam uncapping-knives, in that the opening in the end of the knife became clogged and the steam pressure in the boiler increased enough to burst the boiler. It is next to impossible to have any such trouble with the ordinary amount of fire used under one of these little boilers unless the opening at the point of the knife for the escape of the steam becomes clogged up. In ordinary use this opening will be kept clear; but if the knife is used to push away the cappings or slungum in the capping-melter, especially when the knife itself is cold before steam is up, some of the melted wax, or fibrous material from the cocoons, may clog the opening in the point of the knife so that the steam cannot circulate. Consequently, unless the rubber hose blows off the tube, either at the knife or at the boiler, something will surely "happen." Of course, a wooden paddle is the proper implement to use to poke away the accumulation of cappings, altho when the knife is hot and steam is issuing from the point, there is very little danger that it will get clogged up; but to be on the safe side we believe that a safety valve should be applied. If a common tea-kettle is used for a boiler—and, by the way, this makes one of the very best boilers imaginable—there is not much danger of a serious explosion, for the cap will be forced out before the steam pressure reaches a really dangerous point. As has been explained before in these columns, if a tea-

kettle is used the cap should be fitted in tightly enough to hold the steam, by means of several layers of cheese-cloth.

A large cork, at least an inch in diameter, if not pushed in too tightly, works after a fashion; but for a ten-pound pail, a gallon honey-can, or copper can made for the purpose, we recommend the following arrangement for a safety valve.



Steam honey-knife boiler, showing construction of safety valve. A, clip which holds super-spring to adjusting-screw. B, super spring. C, tin cap covering 1-inch brass tube. D, rubber packing within tin cap.

The tube for the hose should be soldered at one side of the can or boiler, as indicated in the accompanying sketch. About an inch and a half from the opening where the boiler is filled, solder an ordinary brass binding-screw from the carbon of an old dry battery. Hunt up a round tin "salve-box," the cover of which is just large enough to fit over the opening in the boiler, and cut a round piece of rubber packing that will just fit inside. If none of this is at hand, heavy cardboard will answer nearly as well. See C and D in the drawing.

Out of heavy tin make a little clip, A, and punch a hole in one end so it will just slip over the screw before mentioned. When the super spring is in position, as shown, put on the tin clip, A, and turn down the brass nut until there is some tension on the spring—just enough to keep it in position. When you use the knife, if steam leaks out under the cap turn the screw down a little more.

With this arrangement, in case anything should go wrong with the knife, the steam, when the pressure increases somewhat, will leak out under the cap. Furthermore, this sort of arrangement is far easier to open up for the purpose of adding more water. There is no hot slippery cap to unscrew, for the super spring can be pushed back away from the tin cap. It is not even necessary to change the adjustment of the screw.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



WILLIAM BEUCUS, you say, p. 117, "The black is the older race." Where do you get that? All authorities I've ever read say the other way.

"We still incline to the opinion that Mr. Ellis actually heard 'quahking,' page 124. Then that's the first quahking outside of a cell, and the first with tones of unequal length.

TIMBERLINE RIGGS, something seems wrong with your foundation, p. 102. You say, "In order for the disease to get a start, our bees must in some manner become weakened in vitality." "In this locality" the disease gets a start in colonies with strong vitality. And I'm a bit skeptical about its being crowded out of a weak colony—or a strong one either.

ARTHUR C. MILLER, after reading your article, p. 107, I don't wonder I didn't succeed with the smoke-d-stress method. I followed the instruction to give so many puffs, and I know they couldn't have filled with smoke the deep space below and all the supers above. You say, "When colonies are at work in supers, for gracious sake let them alone." Now you quit that. About the only time I want to introduce a queen is when a colony is queenless, and that's mostly when supers are on. And then you don't want me to butt in. Huh!

FIVE pounds of sugar and two pounds of water make a syrup of the consistency of honey, and so I counted that 5 pounds of sugar might take the place of 7 pounds of honey. But there may well be a loss in the feeding, and it may also be that honey is the better food, so a pound of sugar may be none too much to replace a pound of honey. But, say! don't print this Straw in the copy you send J. L. Byer. I don't want that Kanuck to be chuckling over my back-down.

M. JOHNSTONE's plan for proving a plurality of laying workers in a colony, p. 78, is bright. Years ago it was proven in Europe in a different way. From a colony of laying workers many of the bees were taken and dissected, and a large proportion of them were found to contain eggs. I wish Mr. Johnstone had explained what he meant by saying "you will never forget the appearance of those discovered in the act." I suspect, however, that I know, for the only one I ever caught in the act had a striking appearance with its wings crowd-

ed up about its head in a very uncomfortable manner.

NO TROUBLE to make labels stay on tin if you have the right paste, p. 93, but not a word as to what the right kind is. Now, isn't that exasperatingly aggravating? If you know, why don't you tell? [As for the right kind of paste, it is not proper to advertise in the reading-columns. The fact is, however, you can buy a paste at almost any drugstore or stationery-house that sells paste that will fix labels to tin. There is a special paste for the purpose, however, and the same is advertised in another column.—Ed.]

AN Ohioan with nine colonies and a few neighboring colonies asks how he can rear queens from his one Italian colony and be reasonably sure of pure mating. A bit difficult. It's just as bad to have neighboring bees two blocks away as to have them in your own yard. You can encourage drones in your Italian colony and suppress drones in the others and then take your chances. Possibly you can have drones suppressed in neighboring colonies. But it isn't best to have drones and queens from the same colony.

THE new spelling in GLEANINGS is in the line of economy, and I rather like the looks of it, except "thru," which gives me a jolt every time. But if I'd always been used to "thru," spelling it "through" would give me a still worse jolt. I remember when honor, labor, etc., in place of honour, labour, etc., and aretic in place of aretick seemed just as strange as the present changes. Our spelling is by no means a fixt thing, and I wouldn't be stopt from making other improvements that should be accomplisht.

R. F. HOLTERMANN, I don't know whether I'm Eliphaz, Bildad, or Zophar; but while you're sitting among the ashes busy with your potsherd I may as well join the others, if only to "darken counsel by words without wisdom." You fear European foul brood cannot be stamped out. Well, you never entirely stamped out the weeds in your garden; yet I venture to say you've done good gardening. And you can raise good crops of honey while fighting European foul brood. When I first met it I looked forward to it with horror. As I look back upon it there's nothing very bad except the foolish loss of a lot of good combs that you can avoid. Cheer up, brother; things are not so worse as they might be.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



I am glad to note Mr. Crane's success with kerosene to keep off robbers. We have used carbolic acid, but should prefer kerosene.

That cabinet for Hoffman frames, page 122, Feb. 1, is a delight to look at, and probably more than that to possess. When we were feeding last fall, we realized that we needed some convenient contrivance for holding the frames that were removed from the supers for feeding. This looks admirably suited to the purpose, at least for a small apiary. In large yards, if much feeding were done in supers the surplus frames of comb must require careful handling. There are other times, too, when the bees are not occupying all the frames, and combs are awkwardly fragile things to stack up carelessly. Mr. Doolittle's overhead plan would take care of a generous surplus.

Don't we have good-looking covers? I cannot resist saying how I appreciate them and enjoy them. The Florida view on the cover of January 1 is exceedingly interesting, with the white hives under the drapery of picturesque Spanish moss, and then the little lake beyond. If ever I get to Florida again I shall certainly go looking up some apiaries, just as, if ever I get across the water, I shall go hunting out some of those rare and wondrous honeys described so fascinatingly on page 995, Dec. 1, and shall never be quite content till I have tasted the honey of Narbonne and that of Bourbon.

I feel like raising my voice in profound gratitude when I read any protest against division-boards. They are the one thing I despise, and the effort to pull them out is dangerous to my disposition. "I don't see a bit of sense in them—not a bit," I have declared over and over again to Mr. Allen, yet I might never have dared speak right out in meeting, as I supposed everybody else must be devoted to them and utterly dependent upon them. But now I am pleased to add my word. Somebody had persuaded us, when I once threatened never to use one again, that they were necessary to the building of straight combs, so for a while we slavishly used them when there was a lot of foundation to be drawn; but when the hive or super once got filled with combs, out with a swish came my pet aversion. They are all right and convenient when you're making a nucleus or contracting a colony, but in a full hive—no, thank you.

Aren't all those articles about this new bee disease creepy? Whether we like the thought or not, war does not seem to be confined to the human race alone. Nature stages a perpetual war. Germs, insects,

plants, and animals are at war against one another. See what the bees alone have to fight. Even with the help of man's intelligence it is a hard battle against moths and spiders, ants, and birds, even robber bees, and, worst of all, against the diseases, germ or otherwise, that sometimes wipe them out by the thousands and hundred thousands.

MARCH

This mad young March! with the sting
of his laughter
Flung back like a dare as he roars
thru the days,
While troops of wild winds, reeling
recklessly after,
Dance round with delight at his riotous ways!

Who cares what rough unrest he brings?
He's doing things! He's doing things!

He lashes the trees till their sap is
atingle,
He teases the grasses and bullies the
birds,
He rowdies around with the shutter and
shingle,
And shouts without rhythm unmusical words!

Who cares what savage song he sings?
He's waking things! He's waking things!

The hives by the fence as with gossip
are humming—
"We know him, the rogue!" Aye,
they know him, those bees!
And swift thru his winds they are going
and coming
To plunge in the pollen of feathery
trees.

They chide no mood whose courage
flings
The bonds from waking hearts of things.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



During January bees did not get much chance to fly, and the temperature ranged around zero for a longer time than is common here in Colorado. Bees, however, seem to be wintering well, as none but weak colonies have died so far.

The quality of winter stores seems to be good on the whole, despite the late nectar secured from the sweet-clover bloom. There is abundant snow in the hills, and the ground is in good condition. Alfalfa and sweet clover are up to normal if not above. Comb honey will be all gone before the new crop comes on, and there will be very little extracted left when new honey is extracted.

BEEHIVES AS HONEY-TRADE BUILDERS.

Colorado beekeepers are certainly not far behind others in the pushing of honey sales. The extracted-honey crop of Colorado was very poor, and, to hold their customers, I know of half a dozen beekeepers who have purchased in the aggregate twelve cars of California, Nevada, and Arizona honey to supply the trade they have built up. Probably more than fifteen cars of extracted honey produced west of Colorado will be distributed by Colorado beekeepers and Colorado associations. The price paid ranges from five to six and a half cents delivered in Colorado, and is sold at seven and a half to nine cents in a wholesale way.

EXPERIMENT-STATION BULLETINS.

The Colorado Experiment Station has just published Bulletin No. 211, "Colorado Plants Injurious to Livestock," by George H. Glower and W. W. Robbins. This is a most valuable paper to the livestock industry, and is well worth reading by beekeepers who wish to learn the relation of plants and flowers injurious to animals, that are of economic value to the honey industry.

Probably ninety-nine per cent of the losses to livestock come from larkspur poisoning; but the white larkspur growing on the plains east of the mountains has never caused any losses to livestock, so far as known. The larkspur growing in the foothills causes most of the trouble. Both furnish nectar for bees.

The wild cherry, of so much value to the beekeeper who lives near the foothills, is very dangerous to cattle if they eat the wilted leaves.

The lupines, milkweed, and the famous locoweed, are some of the other honey-plants that are the bane of the cattleman. The beekeeper who knows the various poi-

sonous plants will be better informed, and of more practical value to his neighbor, if he has a thoro knowledge of the poisonous plants of his district. He should know that larkspur comes on in June, lupines and loco at about the same time, and that larkspur poisons generally in June and July, while lupines do most of their damage late in the season, when cattle and sheep eat the pods.

THE BEEKEEPER'S SHOP.

One of my first recollections as a boy is the establishment my uncle Oliver Foster had for carrying on his beekeeping operations. He had four separate buildings surrounding his home apiary. On the east side was the warehouse for bee-supplies, which he handled in car lots. Under this building was the bee-cellar. Next to this building, on the southeast of the apiary, was the wood-working shop where he manufactured some of his own inventions such as the Foster super. There he had his sawtables, engine, and lumber storage. On the west side of the apiary was the wax-house and vinegar-shed combined. This was handily near the pump, as every beekeeper readily will realize the advantage of having water close by when working wax. On the north side of the apiary was the extracting-house, comb storage, and everything was handled methodically; and there was a place for everything under cover. I do not recall ever seeing any empty hives piled outside. A house was built at each outyard so that all equipment could be kept dry.

The extracting-house necessarily had the most thought put upon its arrangement, as here was where the rush work of the season was done. The building was mouse-proof. The uncapping-can was placed at one end of a table upon which the honey was piled as brought in. Filling of the cans from the strainer-covered vats was done at one side of the extractor, and slightly below it, as honey-pumps were not used. All the work in the honey-house could move forward in a regular procession, no one getting in the way of others. As a boy I often got in the way in my desire to eat the honey-wet cappings, and I don't know of any chewing more delicious—do you? As fast as the cappings were drained comparatively free of honey they were taken to the wax and vinegar house, where they were washed, the honey water going to make vinegar, and the wax into the rendering-vat. This house also was the foundation factory where thousands of sheets of foundation were made.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



One of the most unfair resolutions ever offered and passed by any organization was passed by the State Association. An exhibit was ordered, after which a resolution was offered disclaiming any responsibility by the association for the expense entailed. In other words, the association gave full sanction for an exhibit to be placed, for which it was to have the credit and somebody else pay the expense.

* * *

While visiting a friend recently, my attention was called to a colony of bees of exceptionally high honey-gathering qualities. My friend said he could tell that queen's daughters from any others in the yard of over two hundred colonies. I asked him what particular characteristics they possessed that they were so easily recognized. He answered that it was principally by the way their bees stung. They were Syrians.

* * *

In the *American Bee Journal* for December, page 412, Mr. Byer takes issue with Dr. Phillips on the matter of over-production. To my way of thinking, Mr. Byer has the best of the argument. The fact that it is necessary to resort to all kinds of ways to dispose of a season's output is conclusive evidence of over-production. Under-consumption, to be sure, may be explained as the reason for over-production; but until consumption is increased to a point where it absorbs the production, over-production will remain a fact.

* * *

In starting an experiment station for bees on an island in San Francisco Bay, the State University has taken the lead in disease control by scientific search. Why not give the entire foul-brood work over to men who are educated, and equipped to handle the situation? When our last foul-brood bill was up for sanction by the State Association I was told that the inspectorship must be in the hands of the beekeepers. What we need as an inspector at the head of this department is an educated man, one who can give a scientific analysis of any disease which may be found.

* * *

From the *Wide World Magazine* I have clipped an article that tells something of

migratory beekeeping in the Holy Land. After reciting the unique position of Palestine geographically in that the flora of three nations meet there, it tells how two brothers followed the flora, camping first in the low altitude, after which they transported their hives on camel back to a higher elevation, thus following the consecutive blooming period of different flowers. By using modern extracting machinery they were able to secure six tons of honey from one hundred colonies in a year. But the most striking assertion in the entire article was that this yield exceeded the yields on the great honey-farms of America and Australia threefold. The assertion that this yield is three times as great as on the big honey farms of America and Australia places some doubt as to the knowledge of the writer on the entire article.

* * *

Dr. A. F. Bonney, in the *American Bee Journal* for October, page 243, says: "I made several ventures into the domain of advertising to sell honey by mail, and find one serious handicap—the breaking of containers by careless mail-clerks and others who handle the sacks. These men, or many of them, seem to have an inherent hatred for parcel-post packages that are at all heavy, and a fragile tag is little or no protection." Dr. Bonney may know the honey business; but the assertions he is making in regard to postal employees is not placing them in the proper light, and leaves me to conclude that Dr. Bonney knows very little about true conditions in the postal service. Ten years of my life have been spent in the railway and city delivery service of Uncle Sam, and I wish to say that in nine cases out of ten it is with the packing rather than the men who handle the packages. The fragile tags are respected by postal employees, but they will not cover the faults of the one doing the packing. When a fragile parcel goes into a sack a fragile tag is attached to the sack outside. These sacks are handled as carefully as is possible with the volume of other parcels that are daily going thru the mails. If honey is packed properly it will be delivered in good condition; but do not expect to send comb honey thru the mails without proper shock-absorbers, corrugated paperboard, or something of that nature. Comb honey requires more careful packing than eggs.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Mention is made in the January 1st issue that it has been rather cold in Florida. My father is "wintering" on the east coast, about 100 miles south of Jacksonville, and he writes me that during all January there were only three days when he wore a coat, and there had been no frost whatever. Incidentally he says in one letter, "This place looks like a paradise to me"—some boost for Florida, eh?

The cold weather predicted in my Notes for January 1 has failed to arrive. At this date, Feb. 5, we have had little severe weather and almost no snow. We have had abundance of rain and much mild weather all thru January, but not nearly as warm as friends in Ohio have written me about, when the thermometer went up to over 60 degrees. The highest noted here was 47 on two different days, and unfortunately both of those days were very cloudy; so after having a very mild January our bees did not have a thoro flight. No doubt in some sections of Ontario if the sun shone on those two very mild days the bees had a fine flight. Even at the north yard, where snowfall is usually heavy, there has been but little there this season.

On page 75, Jan. 15, request is made from purchasers of queens that they report percentage of pure matings in untested queens bought. We have bought a lot of queens, and only the untested brand; and while I have kept no memorandum as to actual results as to pure matings I must in all sincerity say that in the great majority of my dealings we have been thoroly satisfied. More than that, I firmly believe that some of the most honorable men in the beekeeping business are engaged in rearing queens, and our treatment in nearly all cases has been all that could be desired. Punctuality in answering business letters is a splendid feature in any business; but with the queen-breeder it is an actual necessity, and with few exceptions I have had no cause to complain in that line. Any queens that have not made good have always been replaced at once. With these few exceptions, and in some cases, knowing the generosity of the breeder, I have hesitated to report any mismatings, etc., feeling that I had no real cause to complain, and

knowing that, if I did, queens would come at once to replace any that were not what they should be. In one instance, in common with others, we were much disappointed with the methods of doing business and the poor trashy stock of a certain breeder of Carniolans, so called. Failure to answer letters, etc., is bad enough itself; but when stock is worthless in the bargain, that is a combination none too pleasing to the man who spends good money for queens.

HONEY PUBLICITY.

At the Syracuse convention held a few weeks ago, much of the time was taken up in discussing various plans of advertising honey. A writing-tablet that has been used by New York beekeepers for a number of years was on exhibition, and to the writer this appears to be a good thing. This writing-tablet, as many know, is like the ordinary tablets used for school and other work; but in addition it has a lot of printed literature on both sides of the front cover, telling of the products of the bee. One of the chief difficulties in circulating this tablet, as nearly as I could judge by the discussion, was the matter of getting stationery dealers and others to handle it. It occurred to me that perhaps some of the dealers in beekeepers' supplies could handle this in the regular way with other goods; for with but little alteration the tablet could be used in any place, and I feel sure that our New York friend would not be at all jealous. The changes I have in view are the following extracts which would have to be cut out in order to make the tablet acceptable to all parts of the country.

"Scotland and Ireland produce a superior grade of honey in the Eastern hemisphere, and New York and New England in the Western."

None of us would dispute those claims; but there are other localities producing "superior grades" too. What is there to hinder some wholesale plan being originated to get a tablet like this before the public? It is a plan of advertising that could be carried on at cost; and as these tablets are constantly before children and old people as well, would not the plan be a good paying proposition? This is a live subject, and personally I should be pleased to hear the views of others better qualified to speak on a matter of this kind than I am.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



THE HONEYBEE AND HONEY.

"Is the honeybee a native of North America?"

The honeybee is not a native of either of the Americas if I am correct. I am told a colony was landed in Boston, Mass., in the year 1670, and that they were brought there for a twofold purpose. The prime object was to secure their delicious and health-giving product which is so thoroly enjoyed by nearly every one; and, second, the great and almost universal benefits coming to all localities where they are kept, on account of their unpremeditated work in the fertilization of all blossoms in which nectar is secreted."

"Do you mean to say that the honeybee is a necessity toward the perfection of fruit from all blossoms?"

I do not wish to be understood as saying from *all blossoms*; but, according to close observation for the past 45 years, *all blossoms which secrete nectar* need the honeybee or some other winged insect for their perfect pollination. I am well aware that Darwin, the great naturalist, had nothing to say about nectar secretion in flowers when he said, "The more bees the more flowers; the more flowers the more seeds; the more seeds the more flowers; the more flowers the more bees." This shows that, even tho he may have observed closely, he did not think it as important to mention that there are more of the seed-producing plants which do not need the aid of the bees or any other insects, than there are of those which do—that it is only those which do need the aid of the bees that the bees visit, and that the reason why the bees do so visit is because they are invited thru the bountiful supply of nectar secreted by such needy flowers. This is true of fruit as well as of seeds.

Take the wheat from which our bread is made. Did you ever see a bee at work on its bloom? The reason for this is that it is self-pollinating, therefore no nectar is secreted; and no nectar, no bees. On the other hand, take buckwheat. The bees hover over it till their merry hum is music to the apiarist's ears. Why? Because nectar is secreted. Neither a rustling breeze nor a hurricane could pollinate the blossoms. Among forest trees, the basswood with its thousands of inverted or hanging-down flowers calls for the bees to turn themselves upside down to pollinate them; hence nectar is secreted. On the other

hand, the beech-tree bloom is pollinated with the slightest breeze thru its foliage.

What is applicable to the buckwheat and basswood applies to nearly all of the fruit-trees. Hence we find the apple, pear, cherry, plum, and peach, all secreting nectar when the weather is favorable. In certain places years ago, bees were banished, owing to a belief that in gathering nectar the embryo seed or fruit was deprived of something needful for its full perfection. Later it was found that a lessened or poorer crop resulted, so the bees were invited back again.

"But what about the honey part?"

We are told, and truthfully, I think, that honey is the most wholesome and easily absorbed food known to man. Owing to the peculiar conditions and environments of honey-bees during their period of winter confinement in the hive, their surplus honey, stored by them for the purpose of carrying them thru the winter period, is something entirely different from any other substance. It is already prepared by the bees before it is placed in the cells. When we eat honey we have only to assimilate its varied life-giving elements. This is the only food of which it can be truthfully said that some other animal has specially prepared it for our assimilation, thus precluding the necessity of that labor on man's part.

"That is something entirely new to me. I had looked on honey as the sweetest of all sweets, and so proclaimed when I was offering for sale my extracted product."

We were told nearly half a century ago that honey is not as sweet as cane sugar, altho the different acids it contains gives the impression to the sense of taste that it is sweeter. This accounts for the fact that for hundreds of years honey has been termed "the sweetest of all sweets;" and the question asked, "What is sweeter than honey in the honeycomb?" Here we have the pleasure of the sensation produced by sweetness without the danger of retarding the action of our digestion when honey is eaten in large quantities, as is the case with most of the candy and sugars.

Some object to eating comb honey from the fact that the wax comb is entirely indigestible. But because it is wholly indigestible the stomach makes no effort whatever to digest it. The particles chewed fine are an aid to digestion. Comb honey is the most wholesome, not only of any sweet, but of any food known to humanity.

GENERAL CORRESPONDENCE

AN UNCAPPING-ROOM ARRANGED ON THE GRAVITY PLAN

BY P. C. CHADWICK

I have long thought of giving a plan of my honey-house and extracting-outfit arrangement. This issue furnishes me the opportunity.

I am making no claim that I have an arrangement superior to all others; but I am sure I have one which is far superior to many others. So I give my plans with the idea that they may be of assistance to some, and am looking forward to the possibility of gaining something from the ideas of others.

Gravity plays a prominent part in all the work of getting the honey from the hive

such a manner that when the wheelbarrow strikes the door the weight begins to rise, and allows the door to swing open. As soon as the door is cleared the weight pulls the door shut. The honey is now on the wheelbarrow in the extracting-room ready for work. Usually three supers of eight frames each are wheeled in at a time—two in front and one behind. The frames are taken from the back super, uncapped and extracted, and returned to the wheelbarrow without removing the super. The top super is then extracted in the same manner and set back on the first super extracted, to make way to

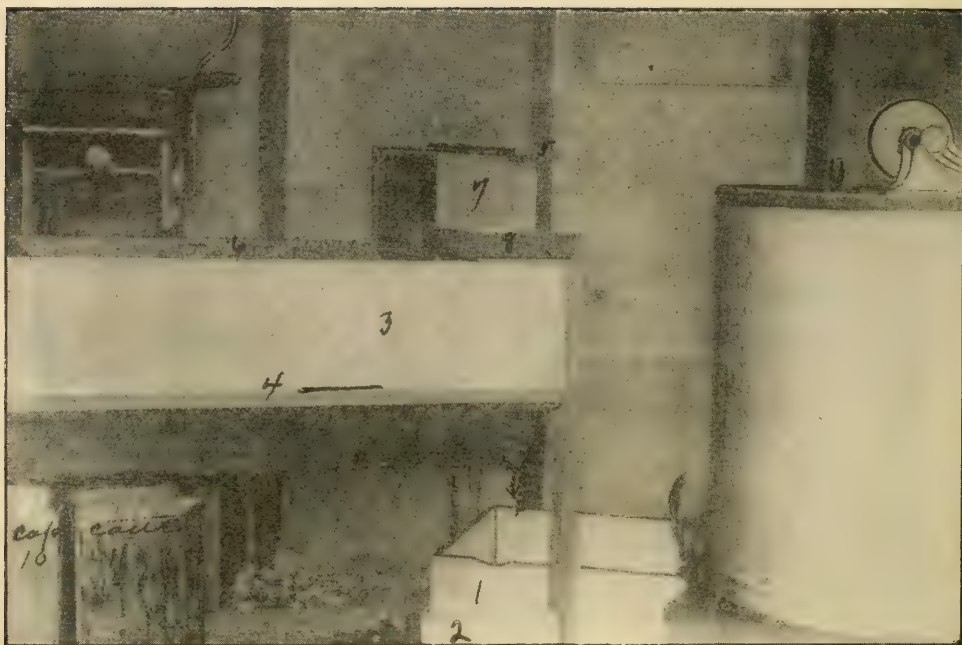


P. C. Chadwick's apiary, showing how the ground slopes down toward the honey-house, and then falls away abruptly behind the building—an ideal arrangement, considering general convenience.

until it reaches the can. Let me first say that my yard is located so that nearly every hive is on higher ground than the honey-house, making the work of wheeling the honey a comparatively easy task. The floor of the honey-house is on a level with the ground at the entrance door, but at no other point. The ground slopes rapidly under the house, to the rear, where the fall has reached a point that will allow the honey-tank to go under the rear of the building as shown in the cut. The honey is wheeled direct on to the floor of the honey-house, the door being connected by a weight and pulley in

the last super of the load. In this manner the entire load is disposed of without lifting a single filled super. If more than one person is engaged in the extracting operations, two wheelbarrows may be used to keep a continual line of supers arriving and departing.

The interior view shown gives an idea of the arrangement of the extracting equipment. The extractor needs no explanation. No. 3 is the uncapping-box, which, as may be seen, has a V-shaped bottom, the draining-screen fitting down into the box to the beginning of the V shape as shown by the



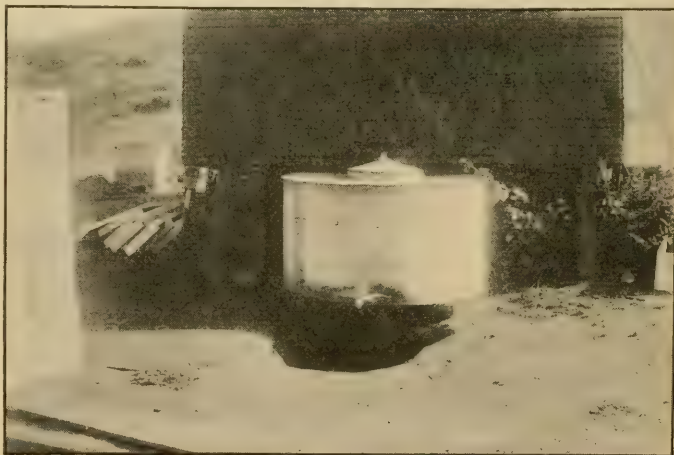
Interior of P. C. Chadwick's extracting-room. The capping-box, 3, has a V-shaped bottom, and is fitted with a screen as indicated by the line 4. The extractor and capping-box both drain into the strainer, 1, 2, from which the honey runs by gravity into the tank below.

dark line and Fig. 4. Board No. 5 fits across the uncapping-box at No. 6, where the notch may be seen for the further end, a like notch being on the near side. This board has in the center a cone-shaped hole, dug out with a gouge chisel to allow the end of a frame a support where it will not slip when uncapping, and also allow the frame to be reversed by simply turning it in the cone. In this way the frame may be reversed by a simple turn of the fingers of the supporting hand without even laying the knife down.

The stove may be plainly seen, No. 9 being the knife-pan with knives ready for use. The knives are in easy reach at all times, and may be exchanged quickly, and often enough to keep the caps coming off rapidly, and with little loss of time. When a frame is uncapped it is set into the extractor, and another taken from the wheelbarrow on the return to the un-

capping-box. The wheelbarrow is supposed to stand close at hand. No. 7 is a rack to hold extra frames uncapped ahead of the extractor when help is being used to turn the extractor during a rush.

No. 8 is a water-pan filled with clean water to remove any honey from the hands or knives that may chance to be encountered. This pan I consider a very essential part of the equipment to insure cleanliness.



Rear view of Chadwick's extracting-house showing the large tank, and place for filling cans under the tank.

Nos. 1 and 2 are the strainer. On the bottom of frame No. 1 is nailed a galvanized screen wire of the finest mesh obtainable in common screening stock. This sets in frame No. 2, resting on a rabbeted edge, which leaves the wire two inches above the bottom of the frame. Frame No. 2 is covered with a heavy piece of tin into which is made a spout forming a large funnel which fits into the pipe leading to the tank below down thru the floor.

The tank may be seen in another picture.

A pair of scales stands under the gate of the tank at a level which will support a sixty-pound can at the right height. The honey is drawn into the can until the beam goes up which is a sign there is a little more than sixty pounds of honey in the can. Now comes the first heavy lifting of the entire operation, as the can must be lifted into its case to be labeled 60 pounds net, and with its partner nailed up ready for the journey to the warehouse.

Redlands, Cal.

ADVANTAGES OF THE CENTRAL EXTRACTING-PLANT

A First-class Carrying-rack for an Automobile

BY W. H. CRAWFORD

By our plan honey from all the outyards is extracted at home, which reduces labor and expense to a minimum, and at the same time allows the beekeeper to be at home most of the time during the harvest. The honey-house is large, and equipped with an eight-frame power extractor, and 1½ H.P. engine, uncapping-can, two large honey-tanks, etc.

The honey is produced in full-depth eight-frame supers above queen-excluders, with seven combs spaced so as to fill all the space without using division-boards. Fifty extra supers are provided and filled with combs or full sheets of foundation before extracting begins. When the honey is ready to extract, as many supers filled with combs as will be needed to make a day's work are loaded on the auto and carried to the outyard. The hives that are ready to extract are located, and one super full of empty combs is placed near each hive so located. The combs in the empty supers are spaced, and an escape-board is put on top of each one of them. One man with a hive-tool pries loose and lifts up the super full of honey, when another man quickly places the empty super in its place and puts an escape-board on the empty super. The first man then sets the full super on top. The quilt and cover are adjusted so as to make the full super absolutely bee-proof so that robbers cannot get into it; for often they make mischief as soon as the bees desert it, if allowed to do so. Now we have a super full of empty combs between the full combs above and the brood-chamber below, so that the bees are escaped into the second story containing the empty combs, instead of into the brood-chamber. Hence not a moment of time is lost to the bees in storing honey in the super, which fact is very important.

The full supers are allowed to remain on the hives over night, giving time for the bees to desert them. Each day in going for the supers of honey, now ready to be carried to the honey-house, other empty supers of combs are carried along, and placed on other hives that are found ready to be extracted in the same manner as already described. Next the full supers now ready to be loaded are loaded on to the auto and taken to the honey-house at home. During this whole time, not a comb was taken out of a super nor a bee brushed off a comb.

The honey is extracted the same day that it is taken from the bees while it is yet warm; for if allowed to remain over a night after being taken off the hives it is twice as hard to uncap and extract.

By this method we have the same amount of empty combs and supers on hand all thru the season to be used as described above, and they certainly do yield as large profits as anything used in the production of extracted honey.

We work each yard once a week, picking out such hives as are ready to extract and passing over such as are not ready, for another week. Only one super at a time is given each colony; therefore it means the loss of quite a bit of honey to allow the full combs of ripe honey to remain on the hives after being finished.

For hauling the honey we use a platform on the automobile 5½ feet wide and 5½ feet long, made of boards 1 x 12 inches by 5½ feet long, cleated together with strips 2 x 2 inches by 5½ feet long, put together so as to make a solid floor. Three sides of it are provided with five rods ½ inch by 3 feet long to each side, both ends of them threaded and provided with nuts; also both ends of each rod are bent to a

right angle. One end of the rods passes thru holes made in the cleats on the sides of the frame and are fastened with the nuts in a way to allow the rods to turn around. Three flat bars of iron $\frac{1}{2}$ inch thick by $1\frac{1}{2}$ inches wide by $5\frac{1}{2}$ feet long with five $\frac{1}{2}$ -inch holes in each of them are provided, and the other ends of the rods are fastened in them in a way so as to let them turn in them as the other ends turn in the cleats on the edges of the frame. These rods and bars make the sides of the frame and are fastened together at the top of each corner with a latch.

The rear seat of the automobile is taken off, and a small bed $3\frac{1}{3} \times 5$ feet by 9 inches deep is made to fit on the car, reaching up flush with the top of the fenders of the rear wheels.

The frame described above fits snugly on

top of the bed and the fenders of the machine, reaching two inches over the sides of the fenders.

While loading and unloading all three sides of the frame can be let down entirely out of the way by unlatching the corners and allowing the rods to turn half around like a crank, so that the sides of the frame are swinging straight down, entirely out of the way in every respect, leaving a nice smooth floor with not a single thing in the way in loading. Then, like turning a crank half around, the sides of the frame are elevated and fastened at the top corners and not a super can get away while being hauled to or from the outyards. This frame holds twelve eight-frame supers to the tier. We have hauled twenty full supers to the load and fifty supers of empty combs to the load.

Roswell, N. M.

CONCRETE WORK -SHOP, HONEY-HOUSE, AND BEE-CELLAR

337 Colonies Wintering Indoors

BY DAVID RUNNING

My building is 16 x 40 ft., outside measure, with a bee-cellar underneath, the ceiling of which is 2 feet below the surface of the ground. The entrance to the cellar is in a side hill. The honey-house and shop are on the main floor, and the second floor is a

large storage room. The bridge shown [cover picture—Ed.] drops down for loading and unloading honey or supplies. Notice the pump between the doors. We have plenty of water always at hand—a big help in keeping things clean.



David Running's 16 x 40-foot concrete building. The end view of this building and the entrance to the bee-cellar are shown on our cover.



The material in this building, including lumber and cement, cost only \$206.75.

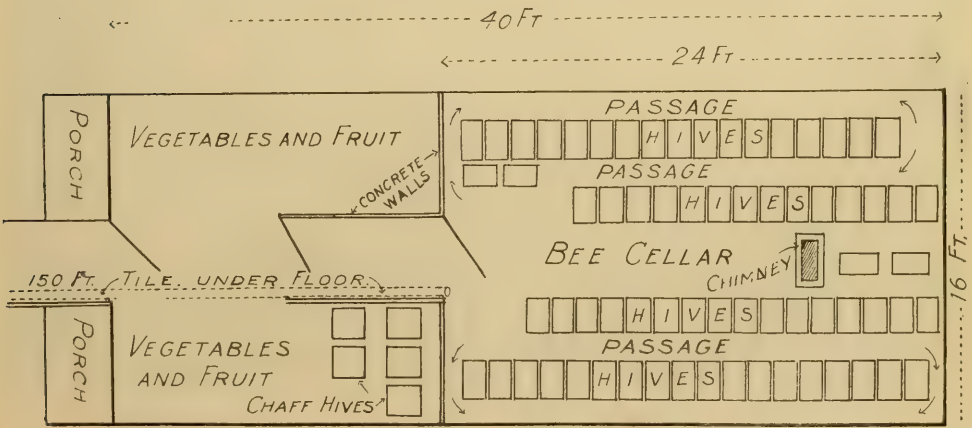
The building is 18 ft. high to eaves from cellar floor, and 25 ft. to peak. The chimney is 29 ft. high, with 9 x 13-inch flue opening at the cellar floor. I built this building myself, so I cannot give you the cost of labor, as it was done at odd times when I was not busy at beework. The total cost of material was \$206.75, as follows:

Lumber and shingles.....	\$103.38
Cement	64.81
Nails	3.92
Gravel	4.95
Bolts	2.26
Locks and hinges.....	1.60
Hooks	.16
Cedar sticks for overlays.....	4.75
Sash, windows.....	9.08
Brick	7.40
Tile	4.50
Total.....	\$206.75

The walls are *six inches thick*. Conerete was made by mixing one part of cement to six parts of gravel. As many stones were put into the forms as possible without having the stones touch each other or come closer than 1/2 inch to the surface of the wall. This accounts for the small amount of cement used.

The door and window frames in the cellar were made of 2 x 6 oak plank, and hemlock was used for those above the ground.

The cellar ceiling joists were put in 6 1/2 ft. from the floor, and covered with cheap lumber, one foot of dry sawdust placed on top, then an air space of about one foot, then another set of joists covered with matched flooring. The shop ceiling is 7 1/2 ft. from the main floor with matched flooring above. The hip roof gives a large roomy upstairs for storeroom. The ceiling



over the vegetable-cellar in the front part is single floor without sawdust covering. This gives us a 9-ft. ceiling in the extracting-room above.

The temperature in the bee-cellar (when bees are in) remains between 45 and 49 degrees F. The outer vegetable-cellar stays about 6 degrees colder with the middle doors open as shown in the plan.

The bees are placed in the cellar in long tiers and piled five colonies high with 2 x 6-inch plank on edge underneath. There is just room for a small man to get around between the tiers, so all colonies can be inspected at any time except two piles (ten hives), behind the chimney. We have 312 colonies in the back or bee-cellar now, and 25 chaff hives in the front cellar (see drawing). The cellar is the best place for colonies in the regular chaff hives in this northern locality. We do not expect to lose a

single colony of bees this present winter. Before putting the hives in the cellar all entrances are enlarged to $1\frac{1}{4}$ inches by the width of the hive by inserting two wedges between the sides of the hive and the bottom-board. The cellar is always so dry that we can light a match (the eight-day kind) on the floor or walls at any time. We have wintered colonies (nuclei) in this cellar when the bees filled only the space between two combs. When putting bees in, also when taking them out, the cellar is kept full of smoke; but no smoke is used on the individual colonies. This is our twelfth winter for using this cellar; and since we learned how to prepare our bees for winter (about nine years ago) our winter loss has been less than one per cent. All covers are left sealed on in the cellar, and are *not loosened before fruit bloom in spring.*

Filion, Mich.

A COMFORTABLE WORK-TENT

BY G. FRANK PEASE

The tent shown in the illustration is my living-tent, containing four rooms and a screened-in gallery. The floors and side walls are of wood, having two windows for every room, that swing in, and screens for each. This tent is one of seven, and is as comfortable as a wooden house.

The automobile, a Studebaker, has been

driven nearly 5000 miles in eight months, with less than ten dollars for repair bill. It has carried heavy loads nearly half the distance. I have drawn about 400 colonies of bees, a carload of bee supplies, lumber, wire fence, hogs, goats, and even a horse, besides hauling all my supers and honey from yard to yard. It will hold 36 colonies



G. Frank Pease's work-tent, auto truck, and solar extractors at his Louisiana location.

at one load, and is indispensable for handling the twelve apiaries scattered in a thirty-mile circle.

I find that it is cheaper to bring all honey to the home central yard to extract than to move extractors, etc., from yard to yard, because the honey has to be hauled to market anyhow, and it is just as well to

carry back empty supers as to go empty; besides, it saves building extracting-houses at all yards.

The solar extractors shown are home-made, and melt cappings in a short time, and the wax is hot enough to run into cakes.

Michigan.

WHY I PREFER THE HOUSE-APIARY

BY E. C. BARBER

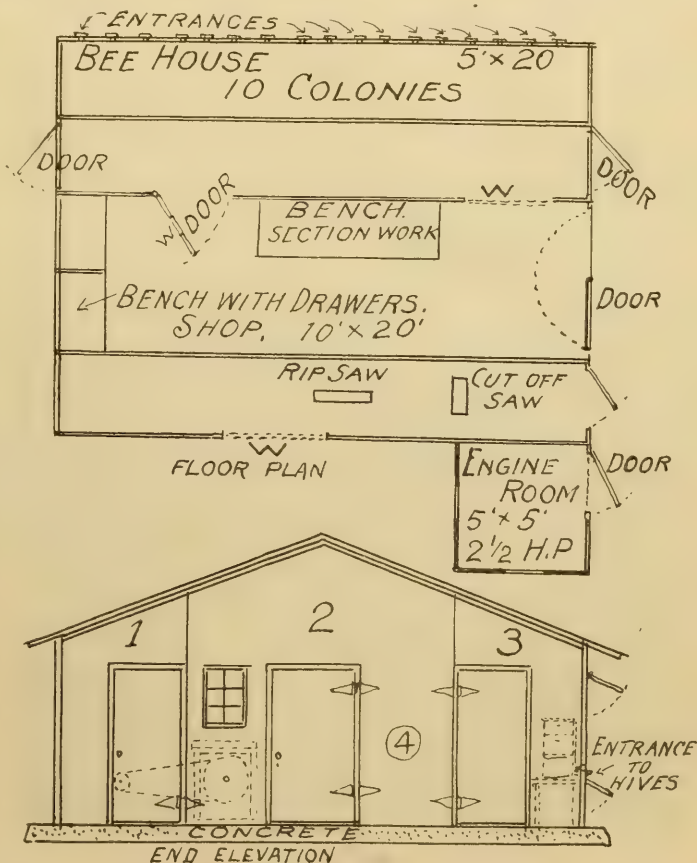
The drawings show the front and floor views of my shop, honey-house, engine-room, and house-apiary. No. 2 in the sketch shows the shop, which is 10 x 20 ft., and has a concrete floor. No. 1 shows the engine-room, 5 x 5 feet, which has a 2½-horse-power engine.

The work-bench is clearly shown. This is three feet wide, and runs the length of the shop. In this bench there is a cross-timber, half way from the floor to the top of the bench, where my shafting hangers are bolted. The belt from the gas-engine runs thru two small holes thru the side of the building into the shop. There are two circular saws, one a cutoff, and one a rip saw.

The other bench I use for section work only. There is also a bench at the end containing eight drawers, where I keep foundation, sections, etc. The shop has four windows and two doors, one of which leads from the shop into the house-apiary.

The house-apiary is an addition built on to the south side of the shop. This building is 5 ft. wide, 20 long, and 7 high at eaves, 9 ft. at the side of the shop, containing a hive-bench 20 inches high and 24 inches wide. On top of this bench there are two sheets of galvanized iron 10 ft. long and 24 inches wide, on which my hive-bottom boards

rest. I use the wide space of the bottom-board the year round. The front ends of these boards are placed tight against the side of the apiary-house. The opening thru the building is cut the full size of the entrance of the bottom-board. I place the hive on the bottom-board, which leaves two inches of the front of the bottom-board, which I cover with a piece of wood 2 inches wide and as long as the hive is wide. The hives are placed between 7 and 8 inches apart. The entrances on the outside have a two-inch frame all around them. These





Addition built on the south side of E. C. Barber's shop, 20 feet long and 5 feet wide. It is covered with two-ply paper, granite finish. Cost for material and labor, \$22.50. Ten colonies are being wintered inside this building, temperature 45 to 50 F. In hot weather the side can be opened to give plenty of ventilation. There is also a door in each end.

are painted different colors—red, white, and green, alternately.

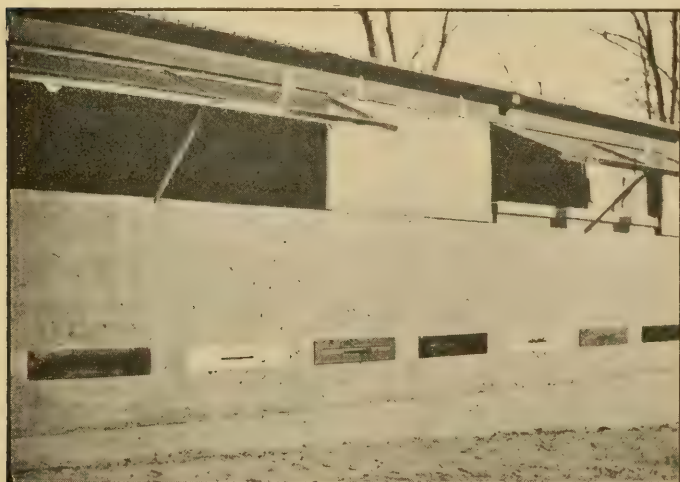
Just under these entrances is an alighting-board 12 inches wide and the length of the building. This is set at an angle of 45 degrees with the side of the building. This alighting-board was placed after the photos were taken.

There are two long windows and three doors. These swing out at any angle desired, to admit air circulating in extremely

hot weather. They also give light when working with the bees. The bottoms of these windows are placed 24 inches above the entrances and alighting-board, which is about the same height as the hive with two supers on. These windows can be opened and closed from the inside of the house. There is also a door at each end. These can be opened for ventilation in very hot weather. A hinged door, 20 inches wide, is fastened on to the back of the hive-stand.

The door swings up back of the hive-stand, and is used for the purpose of holding planer - shavings in packing bees for the winter, giving a space of 2 inches in front of the hives, and about three inches in back, and seven inches between each two hives.

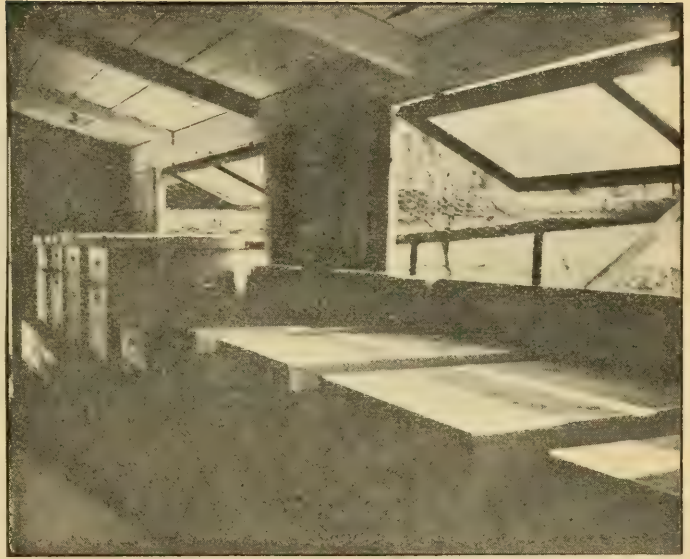
In the spring this door is unhooked and swung down so that the edge comes even with the floor, and the shavings on the galvanized iron can be removed very easily. The interiors of these buildings are painted with two coats of



Close view of Barber's house-apiary, with ventilators open.

white paint, and the exteriors are covered with two-ply granite-finish roofing-paper. The frames are 2 by 4, covered with hemlock boards planed on the inside so that they can be painted easily.

I prefer the house apiary instead of the outside yard for several reasons. First, you can work at your bees and not be among those flying in the air, especially if the windows in the house are closed. What few bees fly from any hive you are working on inside of the house, instead of trying to frighten or sting you will fly to the window to get out. Second, you do not have to carry the hives in and out of the cellar in the spring and fall, or move them to their winter quarters. Third, your bees are always protected from the snow, rain, and winds. Fourth, they are at leisure for a flight in the winter any time when it is warm enough, such as the past few days have



Bees wintering in a house apiary.

been, when the thermometer was around 70. Fifth, in this house-apiary I can see a big difference in spring brood-rearing; also protection during cold nights, when bees are working in sections during the summer.

I cannot see that my bees make mistakes in finding the entrance to their own home. I think it is due to the different colors



E. C. Barber's apiary out of doors.



Class in beekeeping at the Ontario Agricultural College, Guelph, Ontario.

with which I have painted my entrances. I can feed my bees in early spring or late fall and not have any robbing going on, because I feed inside the house with an empty super on top of the hive, with five-pound honey-cans with covers perforated. I do not have as much robbing and trouble with the bees in the house as I do with those that are in the yard apiary. The bees which are in the house seem to be much further advanced at the beginning of the honey-flow than those in the yards, especially in bees and brood.

I get more honey from bees in the house than I do from those in the yard. I think it is due to the protection of the house in cold nights. I have found at midnight that the bees outdoors which were working in

sections during the day were not building comb in the sections, due to the nights being too cold, while those in the house were as busy as any bees could be.

I intend to build another house, which will be 40 by 7 ft., with one side to the east and one to the west, with two rows of hives the whole length, one on each side. This house will hold 40 colonies. I shall not change the plans of the hive-stand, windows, and entrances, because I like this design very much.

The expense of a structure like this will not be as much in the long run as hives, winter cases, shavings, building-paper, packing-quilts, or double-walled hives, and the extra labor it takes to care for the bees in winter and spring.

Framingham, Mass.

the display of apiarian apparatus and implements. The educational value of this was clearly demonstrated by the keen interest shown by those present.

In conducting this course, the Provincial Apiarist, Mr. Morley Pettit, was assisted by F. W. L. Sladen, Apiculturist, Central Experimental Farm, Ottawa; F. E. Millen, B.S.A., Lecturer in Apiculture, and State Inspector of Apiaries for Michigan; F. W. Krouse, President of the Ontario Beekeepers' Association; James Armstrong, Selkirk, Vice-president of the Ontario Beekeepers' Association; also some of the apary inspectors of Ontario. Lectures on allied subjects were given by other members of the college staff. Mr. Frank C. Pellett,

State Apiarist of Iowa, paid the class a visit, and lectured on beekeeping conditions in his state.

Throughout the course there were many kind words of appreciation by members of the class, and on the last day a vote of thanks was tendered Mr. Pettit and the other instructors for the valuable information received and the systematic arrangement of the work.

It is proposed to hold a summer school for beekeepers at the Ontario Agricultural College some time in June, when bees are active and apiary practice will be possible. Persons interested should write at once for particulars to Morley Pettit, Provincial Apiarist, Guelph, Ontario.

SIXTH ANNUAL APICULTURAL SHORT COURSE IN ONTARIO

BY MORLEY PETTIT

This short course was held at the Ontario Agricultural College, Guelph, January 11 to 22, 1916.

Owing to war conditions a large attendance was not anticipated. On the opening day, however, there was an attendance of twenty-seven (later increased to thirty-five) young men and a few ladies. Practically every one of these had been previously engaged in beekeeping. They included beekeepers owning one hundred or more colonies, sons of successful beekeepers, and in one case a beekeeper's hired man. Many different parts of Ontario were represented, also Quebec and the State of Michigan. The get-together spirit was much in evidence, and the interest shown at all the lectures was very gratifying.

It is the purpose of this course to give the underlying principles of bee nature, a knowledge of which is essential to successful bee management. Fifty-nine lectures and demonstrations were given, covering the different phases of beekeeping. Typewritten copies of each lecture outline were distributed to the class so the main points could be followed closely and carried home for future reference. As far as possible the lectures were illustrated with stereoscopic views and the actual objects under discussion. Members of the class were also given laboratory practice in hive construction, and a visit was made to the apiary of a successful beekeeper in the neighborhood of the college.

One important feature of the work was

COMPLETE SPECIFICATIONS FOR A 12 BY 24-FOOT BUILDING

BY HERBERT LYON

This design is for a building 12 x 24 feet, and 8 feet from bottom of joists to top of plate. The floor joists are 2 x 6 inches and 11 feet 8 inches long, laid 16 inches from center to center. Two 2 x 6-inch by 24 feet spiked to the ends of the joists complete the floor frame. (See No. 7 in the illustration.) A 4 x 6-inch by 24-ft. girder properly supported lengthwise under the center of the frame should be used.

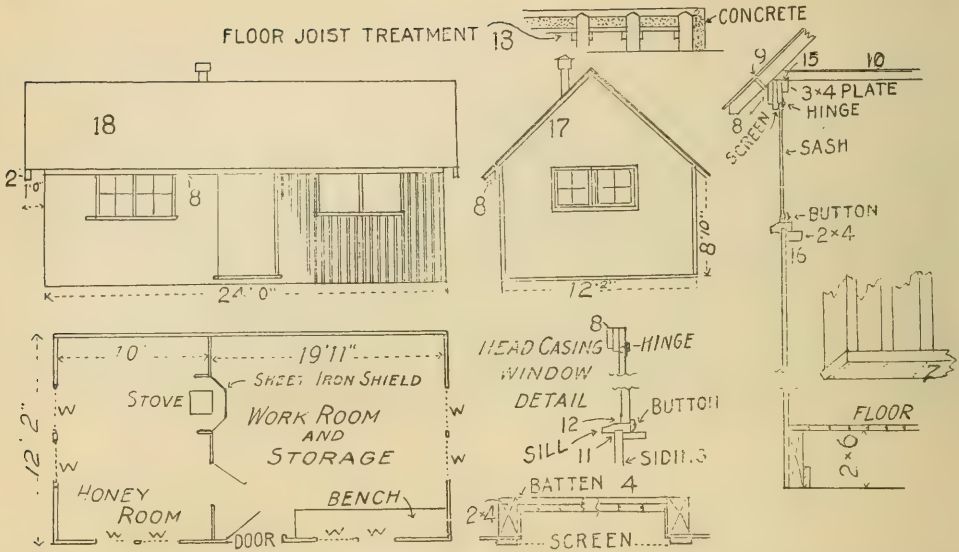
The plates are of 3 x 4-inch material halved together at the corners, and placed 8 feet from the bottom of the floor joists to the top of the plate. (See No. 15.)

Two 2 x 4-inch door studs (No. 4) extend from the top of the floor joists to the bottom of the plate (2 feet 10 inches between studs). A 2 x 4-inch level with the under side of the window sill (No. 16) extends from the outside of one door-stud around

the building and finishes against the second stud. Corner posts and braces can be used or may be dispensed with. The siding is 1 x 10 inches, 16 feet long, matched barn boards, laid vertically. The joints can be covered by $\frac{3}{8}$ x 1 $\frac{1}{2}$ -inch battens, painted a contrasting color and applied after the siding is painted.

The outside door and window casings are of 1 x 4-inch white pine or cypress set back from the edge to form a rebate for screens. Run a 1 x 6-inch fascia along the long sides of the building, the top edge of which is even with the top of the plate. This will form the head casing for windows and door.

The rafters are 2 x 4-inch, placed 16 inches from center to center, 8 inches to 1 foot pitch. These should be notched over the fascia and seated on the top edge of the fascia ends of siding and plate.



Sheath the roof with North Carolina pine roofers. Cut the ends an even foot beyond the siding. Cover the sheathing-boards with rubberoid roofing.

Cut window openings $\frac{1}{2}$ inch less than the size of the sash on sides and top. Allow for sill at the bottom. Note the plowing necessary to receive the siding. (No. 11.)

The windows are four light barn sash, 2 x 2 feet 8 inches, hinged at the top, and rabbeted at the bottom to receive a lip in the sill. They should be cased in the sides and top with stock the same thickness as

the sash. If the house is built over a beecellar it would be well to lay a double floor, the under one diagonal. If desired, a concrete floor can be laid, but I do not recommend it.

Build a board partition to separate the rooms. An opening can be made to admit a stove. Protect all woodwork near by with sheet asbestos. A movable sheet-iron shield can be used to shut off either room when heat is wanted in only one room. Use galvanized-iron funnel for chimney.

Mount Kisco, N. Y.

AN EXTRACTING-HOUSE ON WHEELS

BY T. E. HOLMES

One of the great problems that confront the apiarist who has his bees in outyards run for extracted honey is an economical extracting-outfit. Some erect a building at each yard, and haul the equipment from yard to yard. The more yards you have, the more expensive this plan becomes.

I have visited beekeepers, read articles on this subject, and have come to the conclusion that a portable extracting-outfit is the only feasible solution of the problem. The one that is the subject of this article is 16 ft. long, 8 ft. wide, and 6 ft. high. The framework consists of two-by-fours covered with a light canvas. The extractor is an eight-framer, run by a gasoline-engine, both being placed clear to the front end, leaving no vacant space. The extractor is in the left-hand corner, and the engine sits directly over the front axle of the wagon, where it is evenly balanced.

The extractor is placed on the floor. A pipe runs from the gate of the extractor thru the floor, and then to a tank outside. This does away with all handling of honey while the extracting is going on.

The engine is a $2\frac{1}{2}$ -horse-power Stover. It is larger than necessary, but it is run at a low rate of speed, and consequently the vibration is reduced to a minimum.

We use steam uncapping-knives.

In regard to an uncapping-box, we have solved the problem to my entire satisfaction. To my knowledge it is the only one in use; and if it appeals to any in the beekeeping fraternity they are perfectly welcome to use it. It is simply three or more trays made any length and width most convenient. The trays used in this outfit are made of 1 x 6-inch boards, two feet wide and three feet long. Heavy wire is nailed on the bottom and then a sheet of

tin with thin strips between the screen and tin. This is to give a clear space for the honey to run to the lower end, where a bucket is placed to receive it. The cappings can be only six inches thick in each tray. With such a thin layer, practically all the honey drains out over night. When one tray is filled, another is placed directly on top of the filled one. When not using the steam-knife, the blade is shoved into the cappings where the steam helps to warm the honey so it drains faster. I had only about ten gallons of honey left in the cappings, which yielded 200 pounds of beeswax.

This outfit is owned jointly by Messrs.

Koger, Biddick, and myself. With it we extracted twelve different yards twice. Meridian, Idaho.

[A year or so ago some one suggested the use of capping-trays somewhat similar to those described by our correspondent. We felt at the time that the idea was sound; but to our knowledge no one else has tried it. Is there any objection to the plan? If so, we do not see it. Such trays would be easy to make, and inexpensive. If a beekeeper found that he did not have capacity enough, he could simply make a few more trays. We hope more of our readers will try these trays, and report.—Ed.]

AN ELEVATOR IN THE HONEY-HOUSE

BY A. N. CLARK

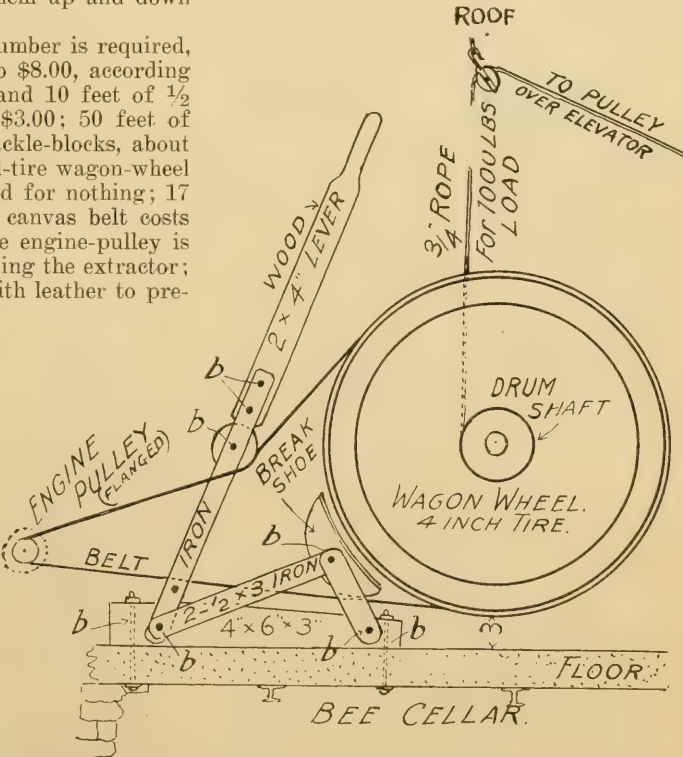
I have recently designed a freight elevator for a beekeeping friend who stores his empty hives, supers, combs, etc., on the second floor of his building, and has found it a laborious task to carry them up and down stairs each season.

Less than 200 feet of lumber is required, which would cost \$2.00 to \$8.00, according to location; nails, bolts, and 10 feet of 1/2 x 3-inch iron bar, about \$3.00; 50 feet of 3/4-inch rope and three tackle-blocks, about \$2.75. A discarded broad-tire wagon-wheel can sometimes be procured for nothing; 17 feet of four-ply stitched canvas belt costs about \$2.00, and the same engine-pulley is used that is used for running the extractor; but it should be lagged with leather to prevent excessive slipping, and flanged. Total cost of materials will range from \$10 to \$15.

The sketch shows the end of rope attached directly to the bail of the elevator, which answers the purpose of lifting light loads like empty hives; but if used for hoisting cases of honey and other heavy materials it is better to attach a tackle-block to the bail, and hitch the end of the rope to a rafter or beam overhead. Such a hitch requires more rope, but develops more power and moves only half as fast. Cutting down on the speed is desirable, as with a high-speed engine of, say, 500 revolutions, the elevator

would run about 40 ft. per minute with the direct hitch. Lansing, Mich.

[Our artist, Mr. Murray, suggests that



the elevator could just as well be arranged to run down into the basement in case bees are wintered in the cellar; accordingly he made the drawing to show this feature.—Ed.]

THE WINDOWS OF THE HONEY-HOUSE

BY B. BLACKBOURNE

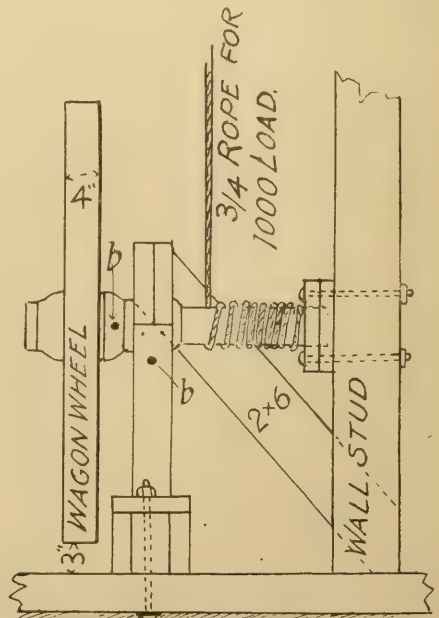
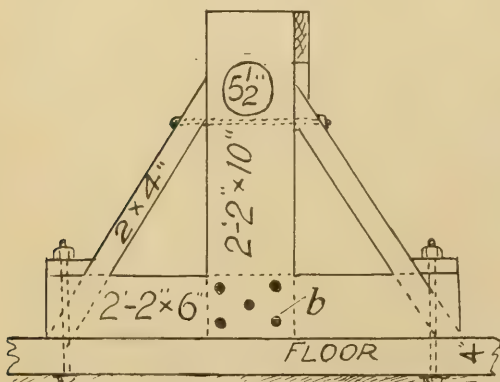
An important part of the honey-house is the window; and altho by the superficial observer it may be dismissed with scant consideration, a little thought spent upon this one item alone when planning a honey-house will be amply repaid by the convenience afforded later.

Before discussing different types of windows especially suitable for honey-houses, let us consider what are the particular requirements of such windows. These are, to admit light; to admit air without allowing bees to enter; to clear the honey-house of bees trying to get out, *without admitting those attempting to get in.*

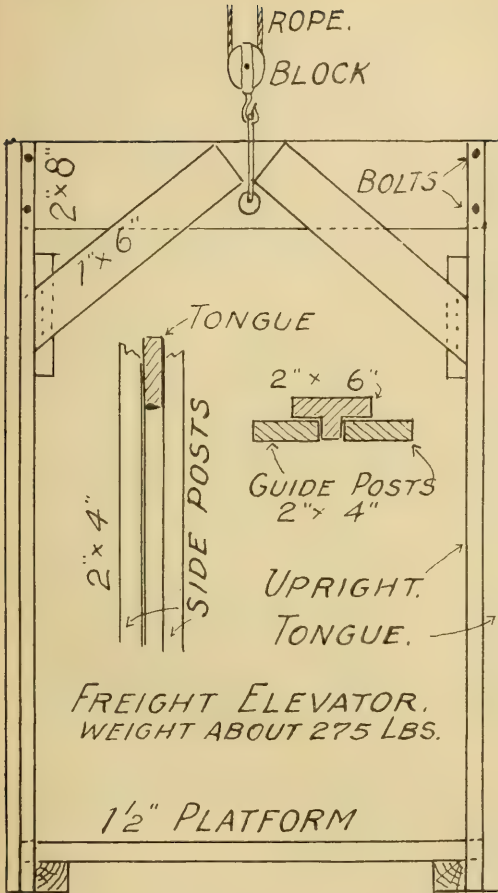
The usual method employed is by the use of wire cloth. This is tacked outside the window, and bee-escapes are fitted at the top corners or else the wire cloth is carried six inches above the opening, and the upper border held out a quarter of an inch as suggested in Dr. Phillips' "Beekeeping." In both these methods it is necessary for the window to be open; and unless Dr. Phillips' sliding sash is used the bees are likely to collect on the window-pane, and many will not find their way to the wire cloth at all. The ordinary sash window is certain to be a nuisance, and a casement window cannot be used unless it is made to open inward, which is inconvenient, and even then bees will get back of the window and collect on the pane.

Simmins, in his "Modern Bee Farm," recommends a good window, which I have used in my bee-house for some years. The glass panes are brought down to $\frac{1}{2}$ inch from the frame at the bottom, and this is left open. On the outside perforated zinc is tacked to the frame and extended 6 inches

up the front, and $\frac{3}{8}$ inch from the glass. The bees fly against the window, fall down, pass thru the opening, crawl up the zinc, and escape. During a honey-flow bees escape well by this method; but if a sudden check comes while one is extracting, or while there is honey in the house, the bees scent it from the outside, and in a comparatively short time find their way down the zinc and into the house. Wasps frequently lead the way, as they are very much quicker than bees in finding an opening; but once the bees have found the way in they don't forget it in a hurry. Very soon the whole apiary is in an uproar; bees inside pass the stolen honey thru the zinc to those outside, and, owing to the hundreds inside buzzing up and down the windows, clusters very soon collect in the top corners. Owing to this trouble I made removable strips of wood with which to close the openings during extracting time, or while I had honey in the house. Then there was the trouble of getting the clusters of bees out in the evening. With this style of window, too, there is another danger. When handling queens in the house it is quite possible to lose the queen, owing to a momentary carelessness, and she will very likely get out before she can be caught. Then, too, the window cannot be opened for ventilation.



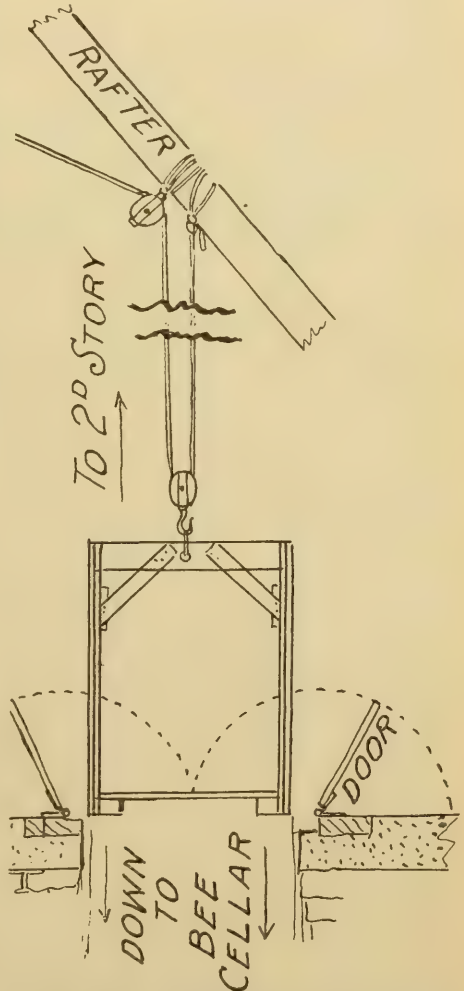
Details of clutch and brake for operating Clark's honey-house elevator.



chance of their doing so when the operation can be carried out so quickly. The disadvantage of this window is that it must be kept closed, as wire cloth cannot be fixed outside.

Some beekeepers, I believe, advocate openings for ventilation covered with wire cloth, quite apart from the windows, to admit light. If, then, a few bees collect inside, the window can be opened momentarily to let them out without danger from stray bees outside getting in, which bees will be busy around the ventilation openings. But this means more expense and complication in the building itself.

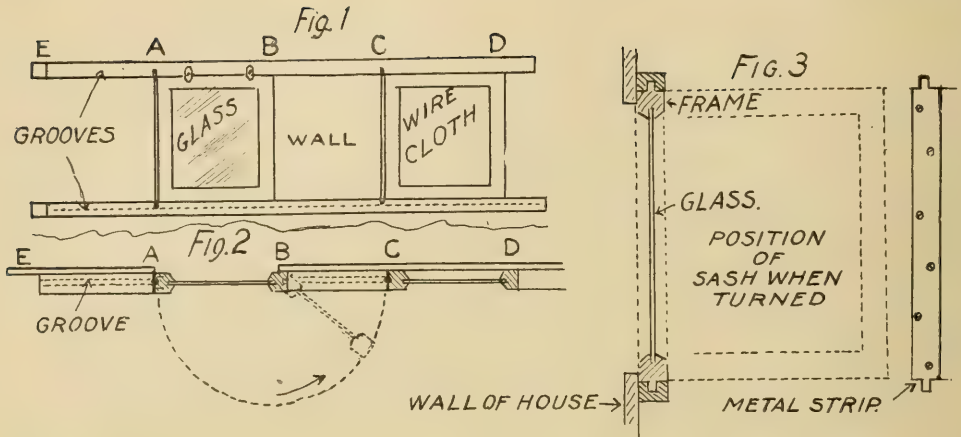
I have devised a window which I think fits the bill exactly, altho I have not yet had the opportunity of testing it. The



I have found (and other beekeepers have remarked on it in GLEANINGS) that it is a mistake to allow bees unavoidably carried into the bee-house, or that have entered by the door, to return at once to their hives. One such bee returning full of stolen honey to its hive when no honey flow is on will set the whole apiary in an uproar; thousands of bees will be buzzing around the windows and door, trying to get into each other's hives, so that robbing may be started. It is, therefore, a better plan to retain all such bees in the house, where they will cluster on the windows, and some expeditious method is required of turning them out in the evening.

Mr. Isaac Hopkins' suggestion for the honey-house window is a good one—viz., that the window shall be hung centrally, so that with half a turn it can be reversed. Bees usually collect and cluster in one of the top corners. One turn, and the whole lot are outside; and, even supposing any are trying to get in, there is very little

Artist Murray's suggestion of letting the elevator in A. N. Clark's honey-house run down into the bee-cellar.



window should be made of one sheet of glass in a frame of good thickness (this to allow ample room for bees to cluster inside the frame against the pane), and hung from one side like a casement window; but instead of using hinges a flat piece of iron of the same width as the thickness of the frame is screwed on, this iron projecting an inch or two above and below the frame, and rounded. The projecting portions slide in grooves cut in a length of wood nailed above and below the opening. Fig. 1 shows the window in position. The bees collect inside. All that is necessary to turn them

out is to slide the window along to the position BC, so that the back part moves from A to B, and swing the window around on the point now at B—see No. 2. A similar frame should be made for the wire cloth for use in warm weather. Always slide the window along before swinging around, then there will be no danger of crushing bees before the window is in its new position. When ventilation is needed, slide the window along to position EA, and wire-cloth frame to position AB, and manipulate as before.

Hoo, Minster, Ramsgate, Eng.

A SIDE-HILL HONEY-HOUSE

Three and One-half Feet Difference in Floor Levels of the Two Rooms

BY E. S. MILES

Our honey-house is located on ground sloping considerably, about $3\frac{1}{2}$ ft. drop in 16 ft. The main room, which opens to the southwest, as shown in the first view, is 16 x 48 ft., with sides 9 ft. high. The addition, or ell, is 12 x 18 ft., with 12-ft. sides. The roof of the whole building is level; but the floor of the ell is 3 ft. 6 inches lower than the floor of the main room. The trees shown at the left are well back toward the other end of the building, and some of them are 100 feet or more from the far end, so that we have a place for our home apiary well away, and partially behind the building from the platform where we load and unload, as shown. There is a door also in the back for use in working with the home bees.

The third picture shows a part of the main room facing the door. The door is closed, and does not show in this picture, but is directly on the other side of the work-table, with the full-depth super upon it. This cut shows about one-half the width

of the main room. The part to the right, not shown, is piled full of supers. At extracting time the space occupied by the piles of bottom-boards, and the 10-lb. pails, is used to store the filled extracting-supers as brought in while extracting.

There is also a window in the main room, which does not show in the picture, between the extractor and the piles of bottom-boards, which, when uncovered, gives ample light for uncaping. It is covered in the picture, as it let in too much light to show some of the other articles properly. The honey-tank, which is 36 inches high, holds 4800 lbs.

A rope may be seen behind the tank in the third picture, which is attached to the wall at one end, and runs down thru a pulley attached to the platform on which the tank rests, and up and around a windlass attached to the wall, so that, when the honey gets low in the tank, it can be tilted up toward the front so as to expedite the emptying.



E. S. Miles' side-hill honey-house having two rooms, the floors of which are at different levels.

A floor can be seen at the left, about three feet above the tank, on which can be noticed some pasteboard boxes. This floor is in the ell, and makes a loft that opens into the main room, and is up about $4\frac{1}{2}$ feet from the floor of the main room. It makes a convenient storeroom for the almost innumerable articles connected with a well-equipped bee business that are used only occasionally.

The end of the main room at our back, as we face the third view, is equipped with a full window in the center, and the door before mentioned; also a half-window on the side near the door. We have a table in front of the window, where the section honey, mostly from the home yard, is sorted, scraped, and graded. It is then set on covers, or escape-boards, and transferred to the floor near the tank and extractor.

At the right, and back, as we face the last picture, are steps ascending to the main floor; and across the side of the ell opposite the tank is the workbench for all carpenter work necessary. At this bench we nail the shipping-cases and case the section honey, while the extracted, when filled into the cans or pails, is usually set back on the main floor, to be cased up and loaded from the door.

From the above, it will be seen that we have a honey-house with a door handy for use with the home yard, and also two doors with platforms of suitable heights to load wagons without lifting, on the two ends furthest from the beeyard so that, in going and coming in outyard work, we have little trouble from bees. It is made with four 4 x 6 sills set on substantial posts, resting on concrete blocks, with 2x6 joists 16 inches apart, and yellow or hard pine flooring.

The sides of the building are of 2 x 4 studding, 24 inches apart, boarded with shiplap, then papered and sided with regular 6-inch house siding. The roof is made of 2 x 4 rafters, 24 inches apart, sheathing and shingles. It is bee, fly, and mouse proof. I don't remember the cost; but I think the material was about \$300, or may be a trifle more. We built it ourselves, and the bees paid us our wages as well as for all the material and all that's in it and the ground it stands on.

A building this size will handle the crop from 300 colonies without serious crowding. By using a cheap shed for empty supers it could be made to handle the crop from 300 to 500 colonies.

Dunlap, Iowa.



Novel arrangement of work-shop as used by H. B. Phillips, Auburn, Me. Photographed by Inez A. Reals, Lewiston, Me.

SOME ADVANTAGES AND DISADVANTAGES OF A HOUSE-APIARY

BY BENJAMIN C. AUTEN

To keep colonies of bees in a house-apiary, one precaution is absolutely necessary--the passageways from the hives to the open air must be bee-tight, and carefully maintained so. This makes it necessary to nail the hives firmly to the floor, and to nail solidly any part of the passageway liable to get dislodged. Even a careful explanation of the reasons might not be convincing; but a trial of a carelessly constructed bee-passage will be.

There are some advantages in keeping bees indoors. They are less excitable to work with than out of doors, apparently not considering the opening of the hive much of an intrusion. On the other hand, they are not easy to get away from in case they do stampede. Another advantage is, they can be worked with in all kinds of weather, thus permitting the utilization of time that otherwise might be unavoidable. Another, high winds do not scatter the hives in pieces over the prairie.

There are a good many disadvantages, however, some of them perhaps trivial; but even trivial disadvantages have great weight when an operator has an overburden of

other difficulties. Entrance manipulations are largely barred, as the outside opening must be at some considerable distance from



B. C. Auten's house apiary, showing the hive entrances just under the eaves.

the hive, the hive of necessity standing back some distance from the inside of the wall to give opportunity for handling supers, etc.

All young bees falling off the frames indoors are irretrievably lost. That may be the case also in outdoor handling; but the loss is not noticed, if it occurs, as the lost bees crawl out of sight at once.

It is next to impossible to hive a swarm indoors, as the bees take up their quarters



A close view of the entrances, with the bees clustering out.

mainly on the outside of the hive. If the hive is taken out of doors to hive the swarm in it, it is then a decidedly nasty job to get the hive placed in position indoors with the bees in it, partly because a large part of them will not be in it even then.

With bees kept in a building, unless the entrances are at a considerable distance from one another, the bees will mix from hive to adjoining hive on the outside wall of the building, then all go into the stronger hive, thus draining the weaker hives.

I had my bees several years indoors, and about two years out. Now that they are

out, sometimes I wish they were back in; but when they were in I wished most of the time that they were out. One reason for wishing them inside is, I would not have to worry about marauders interfering with them, and perhaps leaving the hives torn up in winter time when the bees might perish from my being ignorant of their distress.

Carthage, Mo.

[Mr. Barber has overcome the tendency of the bees to mistake their entrances, and he also provides large windows so that those that get inside the building can find their way out. See his article, page 193.—Ed.]

GARAGE AND HONEY-HOUSE COMBINED

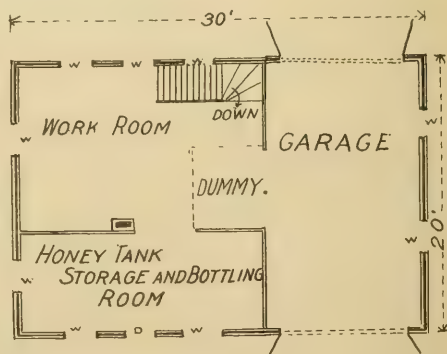
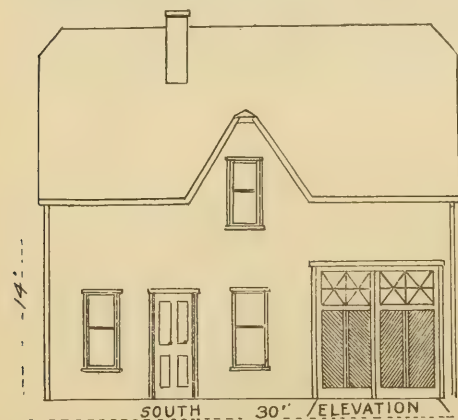
BY HENRY HOGRAVE

I am contemplating building a honey-house in the near future according to the plan shown herewith. This, when completed, I hope will save me much time and labor.

As you will observe, I have a garage in the same building; and as my yard is di-

rectly north of it with rows of ten hives on either side of a center driveway thru the entire apiary, I can run the auto into the yard, load up, and take it to the honey-house.

The extracting-room will be located on the second floor, part of which floor will



rectly north of it with rows of ten hives on either side of a center driveway thru the entire apiary, I can run the auto into the yard, load up, and take it to the honey-house.

The dummy (platform) located next to the garage is another feature of the plan

also be used for storing supers during the winter months. The honey-tanks, bottling, and honey-storage rooms, as well as the workroom, will be on the ground floor, being convenient for loading honey to be delivered, or receiving freight, etc.

Waukesha, Wis.

A DEMOUNTABLE EXTRACTING-HOUSE SUITABLE FOR A HOT CLIMATE

BY JOSEPH GRAY

In this locality we have to consider heat as the big factor, and plan accordingly. All our hives are set north and south, with the ramada (shelter or shed made of

branches) running east and west. The extracting-house is set at the east end because the evening sun is hottest at the west end of the ramada, which is shaded to protect

the hives. For the same reason our house is screened on the north, and closed solid on the south. The doors are solid instead of being screened, and open from the solid half of the building. This protects the opening from robbers. A screen panel above the doors lets out the heat. Here in Imperial Valley we are often at work with the thermometer in the shade well over 100 Fahr.

I favor a portable house, for the reason that, with the changing of crops, a whole district may be plowed up and become of no value from the apiarist's standpoint. One of the troubles of a really portable house is the roof. I have seen many materials used; but the cheapest, simplest, and best is a wagon-cover 12 x 14 feet of strong 12-oz. standard duck, made waterproof and durable by the use of beeswax dissolved cold in gasoline. The mixture must be very thin, and applied with a brush. Oil-dressed duck rots faster, and is stiff and hard, while beeswax is pliable and resistant to wet.

I do not want bees around my workshop; therefore it is away from the extracting-house. All I ask for is a good workbench and elbow room.

The extracting-house is made up of four panels—two ends and two sides. The side-panel framework is made up of 2 x 3-inch pieces except the top rail, which is a 2 x 4, with outside top edge beveled to fit the slope of the roof. The extra inch makes a small eave on which to fasten the canvas.

The north side panel is all wire screen;

the south side all wood, put on from the inside. The building is put together with 4-inch nails, a brace, a No. 3 or 4 bit being used to drill the hole, thus preventing splitting. If the lumber used is surfaced on four sides it will make a better job than rough lumber, as the former is of better quality, and almost free from knots. The end-panels framework is 2 x 3 inches, the ridge being 3 inches above the side plate.

The corners of the building are held together with 5-16-inch lag screws 3½ inches long. I use a No. 5 bit thru the first half and No. 4 bit for the screw part. The door is made of light wood, and opens on the south side. This throws the bees back against the screen. A wood door and screen window attract fewer bees to the exit, as the scent is emitted thru the screen. The question of two doors is a matter of choice; but they are a great convenience during the afternoon. The east door can be used, as the bees are on the west side of the building at that time. Bees are always attracted to the sunny side of the house.

To close the building for winter stores or workshop, use shutters of beaver boards on a wood framework.

The uncapping-can is a double washtub, the upper one with wire bottom. A pipe from the lower tub leads to the receiver from the extractor. A sack is laid in the top tub to catch the cappings, and in this manner the cappings are easily carried, when dry, to the solar extractor.

Gray Heber, Cal.

REARING BROOD IN MID-WINTER IN THE CELLAR

BY GEO. H. REA

Speaking about raising bees by artificial feeding in the cellar, Mr. Editor, here is something that will interest you.

Friday, January 28, temperature 70, sun shining brightly, and no wind, I could not resist the temptation to set a few colonies out of the cellar and play with them awhile. Fifteen colonies were put out. I have never seen bees in better wintering condition. Not a sign of a spot did they make in their splendid flight, either on the hives or the white shirt that I wore. In the afternoon they were so thick on the ground, gathering water, that one could scarcely walk about the yard without tramping on them.

These bees were cellared December 5. Winter stores were mostly buckwheat honey with a little goldenrod and aster honey. Six, that were a little light when cellared, were given a candy cake (about one pound) to be sure that they would go thru a long

winter's confinement. The candy is nearly all consumed.

Under the stimulus of this slow feeding, these six colonies now have brood in from one to three frames, young bees emerging by the hundreds, and the queens laying eggs as in spring. None of those without candy have brood or eggs. All were equally quiet in the cellar.

Perhaps the fellows who don't believe in this abnormal brood-rearing will have a chance to say, "I told you so," next spring; but I am not worrying about it. I have had this experience before. More about that candy and another feeding experiment later on.

So far the open winter and unusually warm winter weather have not affected our cellar temperature. It holds right along at 43. After twelve years of cellar wintering, and with a number of cellars part of the

time, I am convinced that it is the best method of wintering, in this part of Pennsylvania at least. About an average of 43 degrees, and as little change as possible from that, seems to be best.

Beekeepers should look well to the bees' winter stores. The unusual amount of flying weather will cause heavy consumption of honey. Many colonies, especially in the central and eastern counties, were light in the fall, anyway.

The regulation cake of bee candy may be given, or a feed of thick sugar syrup may be given on one of these warm days. Now, I suppose some one will hold up his hands and cry out against winter feeding because it will stimulate brood-rearing—a cold spell coming, consequent losses, etc. It won't hurt if the feed is all given at one time and made with just sufficient water to melt the sugar, and no more. Bees will fly frequently from now on, anyway, but it would make no difference if they didn't fly for a month.

It is interesting to know that, notwithstanding our small appropriation for apimary inspection, 933 apiaries were visited, 9384 colonies inspected, and 258 cases of foul brood found and cared for. Of these, 61 were American foul brood and 197 European foul brood.

THE SPREAD-OUT HIVE.

M'Cready's Spread-out Idea hive, page 30, interests me. Most enthusiastic beginners invent a hive about the first thing they do, and generally it is about the most impracticable kind of hive too (no reflections

on M'Cready's, however). This Spread-out Idea is good, only I think it needs some fixing. My twentieth anniversary in bee-keeping will arrive next April, and I have a notion to invent a hive by way of a celebration. If I do, it will embrace the Long-idea and the Spread-out Idea. I may call it "The Ladies' Friend, or Anti-lift" hive.

Reynoldsville, Pa.

[Some two or three winters ago Mr. J. E. Marchant and later Geo. H. Rea were conducting some experiments in making bees breed while in our cellars. Both proved that by feeding candy they could build up weak colonies in mid-winter into thoroughly strong ones with young bees. A constant supply of fresh food has a tendency to start brood-rearing; and, as they proved at the time, this can be done provided one knows how.

The average beginner and perhaps the average beekeeper would do well to let the proposition alone, for breeding in the cellar is sometimes accompanied with dysentery; but when nice clear crystalline candy is used, and cellar conditions are right, there will be but little danger.

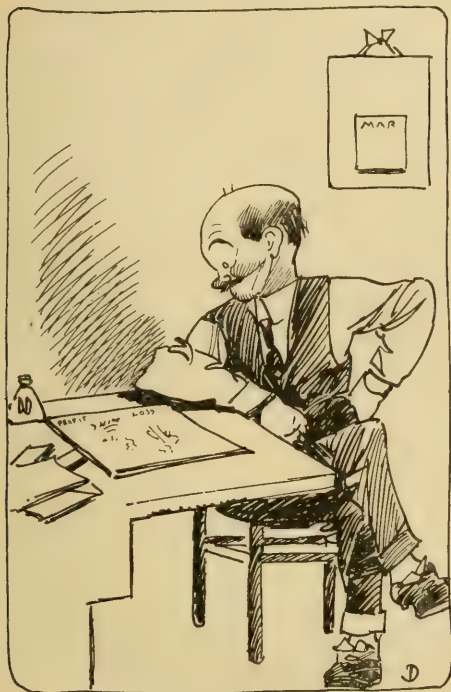
Mr. Rea, who is now back in Pennsylvania, it would seem has been trying the same experiment again, and he was likewise successful again, even in a different locality and in a different cellar.

What man has done, man can do, but it does not follow by any means that all men should try mid-winter feeding.—Ed.]



Gold medal offered by the Michigan Beekeepers' Association at the fiftieth annual convention at Grand Rapids, Dec. 15 and 16. Awarded to Mr. and Mrs. Floyd Markham, Ypsilanti.
See report by F. Eric Millen, page 125, Feb. 1.

Heds of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Of all the uses for honey the one where you hand a couple of well-filled sections over the line fence to your skeptic neighbor is about the best recipe of all.

We shall have one of the best honey seasons next year, I think, I ever saw, judging by the white clover. In all my years of beekeeping I never saw a better prospect. Bees went into winter quarters in good shape. All have plenty of winter stores. Unless something unforeseen interferes, I think we shall have a record-breaker of a honey crop.

J. W. Bittenbender.

Knoxville, Ia., Dec. 2, 1915.

Honey Souring in Combs

I should like to know if honey in the comb or otherwise ever goes bad. I do not mean sour—just bad, so it would be harmful to eat it. What are the causes? Would the presence of wax-worms do it if I had found nests in some of it? I am speaking of honey taken off hives last fall, and kept in a dry place in extracting-frames, the frames in the supers covered. Wm. C. Nelson.

Mount Vernon, N. Y., Jan. 18.

[Honey in the comb will sometimes sour, become watery at other times, so as to be too thin, and the excess of water in the honey may be the cause of the souring. Some honey is more inclined to turn to an

acid flavor than others. Of course, the honey may granulate in the combs; but this is no sign of inferiority. There is no other change that takes place in honey that we know of. The presence of wax-moths would have nothing to do with the matter. If honey is kept in a warm dry place it should ordinarily keep in nice condition; and the warmer and drier it is, the less tendency there is to granulation and turning sour.—Ed.]

A Honey-bread that is Genuine

In reply to your editorial, page 45, Jan. 15, I will say if the food commissioner were to get after me I would not have to plead guilty, as I could show him that my bread contains honey. Being entirely alone for the past dozen or more years I do my own cooking and baking, and invariably put honey in my bread, and nearly all other baking and cooking. I use at least a part honey; and if every family would do this we should need more bees to supply the demand.

Union Center, Wis.

Elias Fox.

Another Course in Apiculture

The Agricultural College at Cornell is offering this coming term of 1916 a course in practical beekeeping. The course consists of one lecture and two laboratory periods of 2½ hours each, weekly. The students are to be given practice in nailing hives, making wax, making hard and soft candies, artificial cell-cups, etc. Later on, when weather permits, each one will have opportunity to handle the bees, and will be required to mount a collection of the nectar-yielding plants of this region. I think you will be glad with me that the great State of New York is at last waking up to the importance of her beekeeping industry.

Ithaca, N. Y.

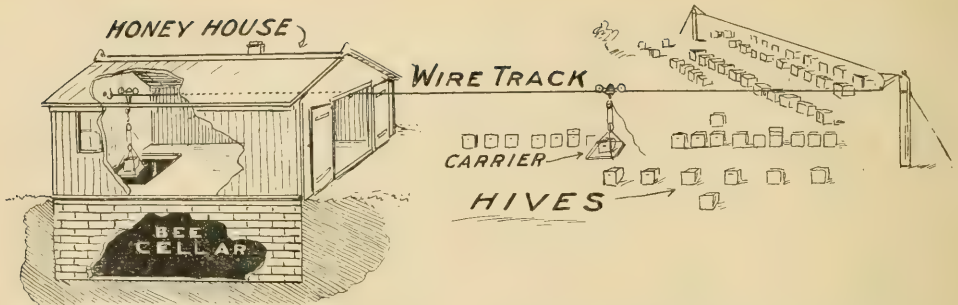
Wendell T. Card.

Is It Necessary to Mark the Net Weight on a Pitcher of Honey?

If one of my neighbors brings a pitcher for some extracted honey, is it necessary for me to tag the pitcher so much net? Can a trader have a sixty-pound can of honey in his store, and draw out of it for a customer? Can I sell a section of honey to my neighbor without stamping it? J. B. Mason.

Mechanic Falls, Me., Jan. 27.

[Unless you do an interstate business it will not be necessary for you to mark anything. If Maine has a net-weight law of its own it would be necessary for you to mark the exact contents by weight or measure of any regular package of any commodity that you might be selling. As a pitcher is not a regular package it would not be necessary, in our opinion, for you to mark this in any manner whatsoever. In fact, it would be impractical. The law contemplates only



regular packages that are supplied to the trade or to individuals. A glass tumbler or a jar, tin can, or anything of that sort, would have to be marked with the net weight, either in quarts or gallons, or pounds or ounces. Usually a 60-lb. can is not considered a package; but to be on the safe side we would advise marking even a 60-lb. can when sent out.—Ed.]

Bees Have Trolley Ride

The sketch represents the plan of my honey-house, bee-cellar, and hive-carrier. The building is 16 x 24, 8 feet high, and the cellar is 7 feet deep. The carrier is of the barn-litter-carrier type, except that it is equipped with a small block and tackle for the purpose of lowering it to the ground while being loaded with supers for the extracting room, or with colonies for the cellar which are lowered thru a trapdoor in the floor of the honey-house. The heavy wire track will carry over 300 pounds. The track can be equipped with switches to accommodate many rows of hives. By using cement block for building, the above contrivance will cost about \$200, not including labor.

Fairfax, Ia.

C. F. Wieneke.

Honey-dew from Oak Galls

In the autumn of 1884 I was invited to inspect the apiary on the famous Rancho Chico, the estate of Gen. John Bidwell. I found over one hundred colonies in fine condition, and some had built comb and stored honey outside of the hive. Looking for the source of the extraordinary yield of honey I found that it came from galls on the white oak. Many trees were covered with the exudation, as if it had been sprayed on by the hundreds of gallons. Some trees were more abundantly supplied with the galls than others; but the infestation was practically universal.

These galls were about the size of a common pea, and so numerous on the terminal twigs that frequently there would be several in an inch length of twig. So profuse was the exudation that, solidifying as it dripped, it hung like stalactites.

This honey-flow is not like the flow caused by aphides, the producing insect being entirely different. It was found that the exudation from the gall took place while the

insect within was in the form of a grub or worm. Later the grub transformed into an imago, and finally emerged a delicate-winged insect that seemed to be a miniature honeybee. Many of the winged insects appeared in December of the same year. While the same galls and attendant exudation have been seen by me in later years in a minor degree, there has never been anything so profuse since.

Placerville, Cal.

H. G. Hulburd.

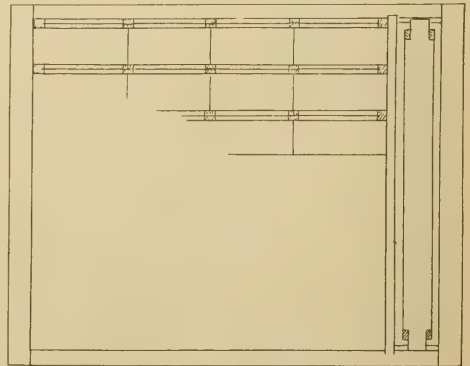
Sounds Cold from Oregon

I always thought that Oregon had a fine climate, but I think it is about as changeable as that of any other state. At present we have 10 inches of snow, and it is still snowing. Last night my bee-shed got so heavy with snow that it broke down, falling on the hives. It didn't do much damage, but I shall have a little fun fixing it up again.

My bees did very well last season, and are in very good shape at present; but I don't know what this cold snap will do to them, as I was not expecting such cold weather here in the valley. It is 10 degrees above zero today, Jan. 13.

Aurora, Ore.

C. E. Sprague.



Here is a super which I have found very serviceable, allowing the use of 4 x 5 sections without waste of space, and providing for an extracting-frame. Any 16 x 20 deep super can be used.

Ann Arbor, Mich.

E. G. Mann.

A. I. Root

OUR HOMES

Editor

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.—I. COR. 2:9.

I have been reading the *Sunday School Times* for so many years I could hardly attempt to tell how long, and it was one of my "happy surprises" when I found glimpses on its pages that its editors had been reading these Home papers of mine at least occasionally. Well, some two or three years ago I was *again* "happily surprised" to receive a personal letter from Chas. Gallaudet Trumbull, telling me of a wonderful new spiritual experience he had just received. I at once wrote him asking permission to print the letter in these Home papers. I have never heard from him personally since, and, of course, I could not give the letter to you all. I have, however, been pleased to get glimpses of this experience in almost every issue of the *Times* since. The tract we have been sending out, "The Defeat of Injustice,"* is one of the fruits of that experience. A few weeks ago at our Bradentown prayer meeting I read the following clipping from the *Sunday School Times*:

"Daddy, did you notice tonight that I bowed my head and put my hands up to my eyes?"

The little girl of five years had cuddled into her father's arms in a corner of the library while the evening shadows were gathering, for one of the precious little times of confidences.

"I was naughty today, Daddy."

"Were you, Annie?"

"Yes, and I was asking Jesus to forgive me. Whenever I am naughty now I bow my head and just tell Jesus, and ask him to forgive me."

"And he always does it, doesn't he, Annie?"

"Yes," the little girl answered. And then in a sudden burst of confidence she poured out the problem of her child-heart. "Daddy, it's awful hard to be good, isn't it?"

That heart-cry of the little girl finds its response in every Christian's heart. No man would wish to deny the truth that is wrapped up in that confession. Yet there are two serious falsehoods implied in our "axiom," "It's awful hard to be good."

It is not only hard to be good, but it is utterly impossible for fallen man to be good. A Christian has come to an encouraging point in his experience when he is able to realize this. Not only is it true that "none is good, save one, even God," but it is also true that no one else *can* be good. This is the message of the Incarnation. God in Christ came in the flesh and "was good"—a thing that was impossible for fallen man.

Then I followed it with part of a letter from our son Huber, as below:

Dear Father:—At the Laymen's Missionary Conference in Cleveland last week I had the opportunity to hear Charles Gallaudet Trumbull, editor of the *Sunday School Times*. He made a splendid address, and I wish you could have heard him. The whole theme of his address was this: During a time

of temptation make no effort to fight against it yourself, but let Jesus Christ carry on the fight. He illustrated his point by telling a story. It seems that a little girl, after joining the church, was asked by an older person whether she felt any different since becoming a Christian. She replied that she most certainly did. When her friend asked her in what way she felt different she said, "Now when Satan knocks at the door of my heart I just tell Jesus to go to the door, and I pay no attention to it myself. When Satan finds Jesus at the door he merely says that he guesses he has made a mistake, and has come to the wrong house."

After the meeting a lady who had just attended some large religious gathering handed me a tract, saying she felt sure I would be interested in it. Now, to tell the truth, so many "tracts" are piled up on my desk unread I feared this would only add to their number; but when I saw it was from my good friend Trumbull I changed my mind. I have now read it thru three times, and "then some." The title of the tract is, "The Life that Wins." There are 20 pages in the tract, and I give you below the contents of the first two.

AN ADDRESS (REVISED) BY CHARLES GALLAUDET TRUMBULL BEFORE THE NATIONAL CONVENTION OF THE PRESBYTERIAN BROTHERHOOD OF AMERICA, 1911.

There is only one life that wins; and that is the life of Jesus Christ. *Every man may have that life; every man may live that life.*

I do not mean that every man may be Christlike. I mean something very much better than that. I do not mean that a man may always have Christ's help. I mean something better than that. I do not mean that a man may have power from Christ. I mean something very much better than power. And I do not mean that a man shall be saved from his sins and kept from sinning. I mean something better than even *that* victory.

To explain what I do mean, I must simply tell you a very personal and recent experience of my own. I think I am correct when I say that I have known more than most men know about failure, about betrayals and dishonorings of Christ, about disobedience to heavenly visions, about conscious fallings short of that which I saw other men attaining, and which I knew Christ was expecting of me. Not a great while ago I should have had to stop just there, and only say I hoped that some day I would be led out of all that into something better.

Please note above what he says about "power." In these days of automobiles, when not only boys but *girls* too learn to run them; when you feel you have at the tips of your fingers *power* to go just as fast as any one can want to go, and, too, by practice, run almost to a hair's breadth of where you wish to go, who has not felt the thrill of being entrusted with such power? Well, Trumbull speaks from experience of something "much better than power." I read the above part of the tract to our large Bible class in our Sunday-school here, and they wanted me to go on with it, just as

* See page 557, July 1, 1915.

many of you, dear friends, would have me do; but you really need the whole of the tract to get the writer's secret. The little girl mentioned in Huber's letter had touched the point. I will give just one more extract from p. 13.

What I mean is this: I had always known that Christ was my Savior; but I had looked upon him as an external Savior, one who did a saving work for me from the outside, as it were; one who was ready to come close alongside and stay by me, helping me in all that I needed, giving me power and strength and salvation. But now I knew something better than that. At last I realized that Jesus Christ was actually and literally within me; and even more than that: that he had constituted himself my very being (save only my resistance to him), my body, mind, soul, and spirit. Was not this better than having him as a helper, or even than having him as an external Savior—to have him, Jesus Christ, God the Son, as my own very life? It meant that I need never ask him to help me again, as tho he were one and I another; but, rather, simply to do his work, his will, in me, and with me, and thru me. My body was his, my mind his, my will his, my spirit his; and not merely his, but literally a part of him; all he asked me to say was, "I have been crucified with Christ, and it is no longer I that live, but Christ liveth in me." Jesus Christ had constituted himself my life.

Now, here is something that took hold of me more than almost anything else on the whole 20 pages. Read below:

Do not think that I am suggesting any mistaken, unbalanced theory of perfection or sinlessness in what I have been saying. The life that is Christ reveals to a man a score of sins and failures in himself where he saw only one before. He is still left the free will to resist Christ; and my life, since the new experience of which I speak, has recorded shamefully many failures and sins of such resistance. But I have learned that the restoration after failure can be supernaturally blessed and complete.

As I write on this 3d day of Feb., 1916, I feel that I have made a little start on "The life that wins," and the first revelation that comes to me is, as expressed above, where I saw only *one* sin before, there are now "scores." Sheldon, in one of his books, suggests, "What would Jesus do" were he in your place? Dear friends, you have given me scores of kind words. They are coming all the time. As I think of it, the chorus of the old hymn that the good woman wrote comes to mind.

Lord, lift me up and let me stand,
By faith, on heaven's tableland,
A higher plane than I have found;
Lord, plant my feet on higher ground.

NON-RESISTANCE AND LAW ENFORCEMENT.

The two letters below explain themselves.

Did A. I. Root ever consider that the plan of salvation brought to us by Jesus Christ teaches us non-resistance? He suffered all patiently to redeem mankind from their sins, and wishes his followers to follow in his footsteps. L. A. R.

I am a reader of GLEANINGS, and am pleased with the Home department, and have frequently thanked God for the spirit of boldness he has given

you to express your convictions on religious and other important subjects. Of course, I do not approve of all your ideas; but in such cases I turn your idea over to the Lord and tell him to let the light on you and also ask him to search me; and, if I am in the dark, let the light on me. I often say, "Lord, do not let me be deceived on any line." The psalmist prayed that way. He also prayed, "Keep back thy servant from presumptuous sins; let them not have dominion over me," etc.

In looking over the Home papers of June 15, I notice Bro. Poister's admonition. Thank God for such men. Now, I think that carries the spirit of the Master. Brother Root, do not pass that admonition lightly by. Paul says to the Romans, "If any man have not the spirit of Christ he is none of his." Now, if you find in any of Christ's teaching the spirit of fight or defense, use it. But if you cannot find it, beware of your own ideas.

I was surprised to notice that you regard the scripture quotations the brother referred to are merely for neighborhood differences. Are we to understand you that the Son of God left the Father's throne and shed his blood merely for neighborhood differences? Was it not that he came to save that which was lost? Brother Root, let us take the Lord Jesus for our example in suffering in any shape or form, and I then am sure we shall not miss the blessing. In conclusion, please take this in the spirit it was given—not in malice or any ill feeling, but in love; and if you want to defend yourself give us a "thus saith the Lord."

Abilene, Kan., June 20. N. G. HERSHEY.

My good friends, I do not know but we are all getting into "deep water" when we undertake to discuss this question. Our Lord and Master once drove the money-changers out of the temple with a whip; but it has been claimed that this whip was only harmless cords. Again he says, "I came not to bring peace on earth, but a sword;" and I suppose sermons have been preached and books written on this very passage. My opinion is that it refers particularly to the enforcement of law. Again, Jesus came to earth on a special mission; and that mission was summed up, I believe, by the words "Peace on earth, good will to men." And, once more, it is my impression that this refers to law enforcement. How about making counterfeit money and passing it? Counterfeiters almost always fight with guns and pistols when their gang is broken into. And, once more, in regard to the liquor-traffic. Shall we apply non-resistance to this and let the business go on? God forbid. Once more, it is quite a different matter whether the sin affects the individual alone or humanity in general. When a blow comes to me individually on the right cheek, I believe it is my duty to turn the other cheek also. But in case of a blow against all humanity, like counterfeit money, or against suffering men and women and children in consequence of the liquor-traffic, then I believe our Lord and Savior would have me fight to the best of my ability for the suffering ones.

NON-RESISTANCE; AND DID JESUS MEAN TO SAY THAT WE SHOULD NOT PROTECT OURSELVES AS A PEOPLE AND AS A NATION?

A. J. Root:—Properly speaking, Jesus did not say, "Resist not evil." The Greek word which is translated "resist" in Matt. 5:39 is translated elsewhere in our English Bible either "resist" or "withstand." It is used in fourteen places in the Bible—Matt. 5:39; Luke 21:15; Acts 6:10, 13:8; Rom. 9:19, 13:2 twice; Gal. 2:11; Eph. 6:13; 2 Tim. 3:8 twice; 4:15; James 4:7; 1 Peter 5:9. An inspection of these places will show that the word cannot be supposed to carry in itself any particular reference to the use of physical force. A fuller study of this Greek word (which is just as open-faced a compound as the English "overthrow" or "ontrun") shows that it does not express the idea of any activity at all, but simply of taking an attitude or staying in an attitude, while "resist" necessarily expresses the idea of an activity directed against the antagonistic person or thing. In this respect "oppose" would be a more exact translation, though "oppose" would not be very perfect either.

Since the word does not express anything so particular as the use of physical force, we have to judge of its force in this passage from the connection. The connection is along such lines as these: Do not make a point of seeing to it that every misdeed is paid off, but bear petty outrages without setting yourself in opposition. It is very important to note that all Jesus' instances are of petty outrages. Now, a man chooses his instances so as to be appropriate to his meaning. It would be perfectly ridiculous if a man meaning to say that we should not resist an attempt at murder or the robbery of a lifetime's savings were to express this by saying, "Do not resist a slap on the cheek or an extortion of half an hour's work." Now, even among those who are (as Anacharsis Clootz said of himself) "personal enemies of Jesus Christ," nobody denies that Jesus knew how to express himself tellingly. If Jesus knew

how to express himself as intelligibly as ordinary men, then by those words about a blow on the cheek, etc., he did not mean the most serious outrages.

My understanding of the meaning is like this. A Christian is concerned in this world with things he is to recognize as much more important than standing up for his rights; properly, standing up for his rights is no object at all to him; and if he is to stand up for his rights whenever they are violated he will have no time left for his Christian duties; besides, the fact that standing up for his rights will sometimes work against the objects that he as a Christian is pursuing. So he should not make it a rule to stand up for his rights. But if the things that are being done to him are such as to interfere with his doing the things that it is his Christian business to do, then it is a part of his Christian business to put out of the way whoever and whatever interferes, provided that it does not cost more in time, nerve-force, and arousing of hostility, than it is worth.

At present a mighty attempt is being made in the world to give war the right of way; to insist that, when war is started, interests of peace must give way to interests of war. If this attempt should be successful, it would set back the cause of peace at least a century. Anything that we can honestly and lawfully do to defeat this attempt, whether by selling arms or otherwise, is well done. A great deal of the talk about the exportation of arms leaves out of account the fact that the actual exportation of arms is simply helping honest and peace-loving people to defeat violent crime. It is as if I saw John Doe jump up and begin shooting at Richard Roe because Doe had heard Crazy Joe say that Roe meant to steal Doc's chickens, and I should hand Roe a gun, since the circumstances were such that Roe must fight or go under, and the people should tell me I was doing—well, very unchristianly by helping to arm a fight.

STEVEN T. BYINGTON.

Ballard Vale, Mass., June 25.

POULTRY DEPARTMENT

HOW TO MAKE HENS STOP LAYING?

"Whew!" says some one. "Why should anybody want to make hens stop laying?" Well, it's something like the boy who wrote a composition on pins. He said pins had been the means of saving many lives. When the teacher asked him to explain in what way pins saved lives, he replied, "By not swallowing of 'em." Again, don't you know that, when our great doctors want to get control of an epidemic, they first proceed to cultivate the bacteria, and when they can get it to growing in their "pure cultures" (I think they call it) they can then formulate an antidote. Now to business.

When I first got here, as usual our 60 hens began to increase in laying; but after they got up to about 18 eggs a day, to my surprise (and disgust) they dwindled back to only five or six a day. I told neighbor Abbott about it, and when he found I was giving them a mash of shorts and boiled

sweet potatoes he said at once that sweet potatoes, either raw or cooked, would "*stop hens laying*." He added further, "You can give them to your growing stock, sitting hens, or hens with chickens, or to a pen of roosters, but never to laying hens."

I stopped the sweet potatoes, and soon I had toward two dozen eggs a day. Let me explain further.

A year ago we set out sweet potatoes in December and January, and I didn't get back here to dig them for almost a year. They were not only very large, but very poor. We used the best for the table, and boiled the rest for mash, as explained; in fact, some of them were partly decayed; but as the fowls ate them greedily I thought it would do no harm. Now, is it only *bad* sweet potatoes that stops laying? Mr. Abbott thinks not. A neighbor's hens got into the sweet potatoes, dug them up, and ate them raw, and very soon he did not get an

egg. Can our readers tell us more about this? I feel pretty sure that too much of a certain diet of many things will cut down the egg yield, and it is also true that a change in diet will often *add* to the egg yield. Plenty of sprouted oats, or even green oats a foot high, will often do it.

SPURS ON MALE FOWLS; HOW TO REMOVE.

I will tell you my way of taking spurs off, and you can do it in a few minutes. Put on the fire, in a pan of water, two potatoes about the size of a nice apple. Boil till nearly cooked, and then push each potato on a spur and keep it there for a minute or two, when the spur will come clean off.

JAMES SMITH.

Kirkmahoe, Dumfries, Scotland, Nov. 9.

HEALTH NOTES

COTTAGE CHEESE OR "DUTCH CHEESE," AND HOW TO MAKE IT.

Mr. A. I. Root:—In your Home department, you occasionally make mention of "cottage" cheese as a very wholesome article of diet. I wish you would, in an early number of this magazine, describe the process of making this kind of cheese. From what you have said about it from time to time, the writer's mouth waters for it, and he is anxious to try his hand at making it.

Halls, Tenn., Jan. 15.

J. C. SAWYER.

My good friend, I supposed every housewife in the land knew how to make cottage cheese, or what is called in many places "Dutch cheese." Mrs. Root says, set sour milk on the stove until it is about as hot as you can bear your finger in. Then pour it into a cloth bag, strain out the whey, and season to taste.

CURING BEESTINGS, POISON IVY, ETC.

More than forty years ago, when I first made the acquaintance of the honeybee, beestings were very painful, and swelled on me, and I listened with very much interest to everybody who had a remedy for beestings. The juice of different plants, a piece of onion, potato, a little bit of mud, etc., were carefully tested; but I soon decided that it was only a notion or the effect of the imagination. Then somebody advertised something in a bottle. In fact, a beesting cure had been advertised in the bee-journals more or less; and as good a man as Dr. A. B. Mason, of Toledo, declared that the essence of peppermint or some other essence, I cannot remember what, was a *sure* cure. I said first, last, and always, "Pull out the sting. Do not rub the place, nor meddle with it so as to diffuse the poison, but get busy, and get your mind off from it, and the pain and swelling will soon go away;" and my impression is that the beekeepers of our land gradually came to the same conclusion I did. Get out the sting, and get it out with a knife or a pair of tweezers so as not to squeeze the contents of the poison-bag into the wound.

Well, of late our agricultural papers have been giving cures for ivy poison, and I have all the time felt confident that a careful experiment would prove about the

same as with the beesting. The matter was brought to mind by a clipping, but I cannot tell just now what periodical it came from. The closing words, which I have put in italics, are what caused me to give it a place here:

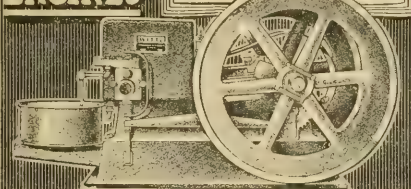
CURES FOR IVY POISONING.

The *American Botanist* publishes a letter from a Brookline, Mass., correspondent stating that fishermen along parts of the Massachusetts coast find a prompt cure for the effects of poison ivy and poison sumac in the fireweed (*Erechtites hieracifolia*). The poisoned parts are rubbed with the leaves of this plant, which must be fresh each time, bruised and crushed so that the sap moistens the skin freely. An editorial note mentions the fact that a large number of other plants have been recommended for ivy poisoning—notably touch-me-not and burdock—but that "*it seems doubtful whether any of these herbs can do more than take the attention of the patient from his troubles and cure him by mental suggestion.*"

Let me call attention to one point in all these remedies. If it were true that the juice of fireweed is an antidote for poison ivy, how did anybody happen to discover it? Edison has been called the greatest inventor of the age; and here comes the point—how does he accomplish his inventions or make his great discoveries? Why, he did it by making thousands of tests, on storage batteries, for instance. I think I have seen it stated how many combinations he made with chemicals before he brought out his present storage battery. Now if catnip, tansy, and a great lot of weeds have power to cure diseases, the only way to settle it would be to get a hospital full of patients suffering from one particular ailment. Then bring on your herbs—a hundred, or, better, a thousand. Squeeze out the juice or make some tea and give to the patients, and notice the effect. If catnip tea gives relief to thirty or forty, and the other patients are not helped, then we may be pretty safe in saying that catnip possesses medical qualities for certain diseases. Has such an experiment ever been made? Not that I know of. Of course our grandmothers gave catnip tea to the children that were ailing, and they got better, forgetting that nine times out of ten they get better without catnip tea, and so on.

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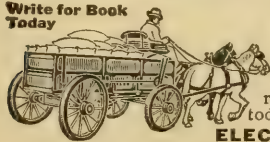
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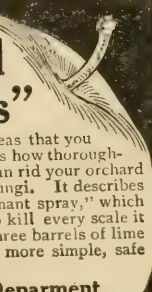
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Don't run risks when you can buy at growers' prices, direct from America's largest nurserymen. 62 years' reliability and experience. Thousands of hardy, healthy specimens of choice Fruit and Ornamental Trees. Over 1200 acres—48 greenhouses. Safe arrival and satisfaction guaranteed.

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WAIT! BEFORE YOU ORDER

Seed or Nursery Stock let me send you our wonderful, new, different and original four-color seed book—an eye opener—the **Royal Purple Grand Champion** line of pure tested field and vegetable and flower seeds, also fruit trees, vines, shrubs, etc., at new, surprisingly low prices.

REMEMBER Nothing is so good but what it can be better. Thousands who have bought from other firms for ten and twenty years tell us we give better seeds at lower prices. Investigate. Get our book. Try our seeds and nursery stock. You will say the same thing. All I ask you to do is just get our book, look it over, try our seeds—be your own judge.

Galloway Bros. & Co., Dept. 761 Waterloo, Iowa



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Every reader should have a copy. Over 27 years growing the finest Strawberries, raspberries, Blackberries, Currants, Gooseberries, Grapes, etc. All kinds of Fruit Trees, Ornamental Shrubs, Privets, Barberry, Asparagus, Rhubarb, Horseradish, and Farm Seed.

Our Nursery and Farms comprise over 1200 acres in the fertile Miami Valley. Our 40-page catalog is yours for the asking. It is full of just what you want to know about fruit-growing.

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Tells about planting, pruning, spraying and selling fruit and garden truck.

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We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

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BIGGEST MONEY-MAKER KNOWN—INVESTIGATE

The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhulled and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.

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They do more thorough cultivation, quicker, cheaper, with less labor and bigger results than any similar tools. Fully guaranteed.

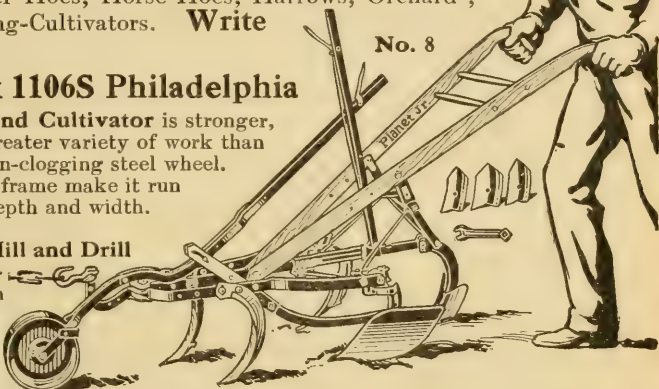
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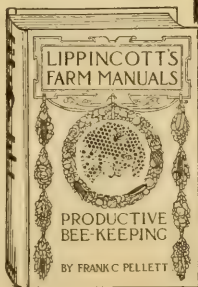
No. 8 Planet Jr Horse Hoe and Cultivator is stronger, better made and capable of a greater variety of work than any other cultivator made. Non-clogging steel wheel. Depth-regulator and extra-long frame make it run steady. Adjustable for both depth and width. 15 other styles—various prices.

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Bees are a money making asset on any farm, bringing annually a far greater return to your table and at the market than they cost in care and expense. Do you know the twentieth century methods? Buy **PRODUCTIVE BEE-KEEPING**, learn how to make a beginning and how to see it through. It gives the methods found to be the best money-makers by extensive honey producers. The illustrations give in pictorial form all that is needed to explain the text.



135 illustrations. 376 pages. Octavo. Hand-some cloth. \$1.50 net. Postage or expressage extra.

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Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, to \$8 doz. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 815 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

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A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it **Powdrpaint**. It comes in the form of a dry powder; and all that is required is cold water to make a paint weather proof, fire proof, sanitary, and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 58 North St., Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.



Free for Testing

A pair of mated **EVERBEARING STRAWBERRY PLANTS** FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 450 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new **CEREAL FETERITA** to plant a rod square of ground. Also a pkt. of perennial **ORIENTAL POPPY** seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with **THE GARDNER NURSERY COMPANY** Box 749, Osage, Iowa.

"Next Door to Everything"

Reads the advertisement of a great railway terminal, "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

March cash orders are subject to a special discount of 1 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St.

Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, altho I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear thru the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1624 Court St., Binghamton, N. Y. If you live in Canada address 1900 Washer Co., 357 Yonge St., Toronto Ontario.

Notice to Northern Beekeepers!

We are making a specialty of the pound-package trade, and will ship from our yards at Fitzpatrick and other points in Alabama packages and queens during April and May at the following prices:

Pound package with queen, \$2.00; without queen, \$1.25. Untested queens, single, \$1.00; six, \$4.50; dozen, \$8.50; in lots of 50 or more, 60 cts. each. Select tested, \$2.00. Breeders, \$3.50. A special price quoted on packages of 50 or more, and 5 per cent discount on all orders by March 15.

We have improved on the pound package, making it larger and lighter, also giving it more ventilation. The vast experience of our Mr. A. B. Marchant with The A. I. Root Company enables us to know what the trade wants and needs, and we are well equipped to take care of any and all orders, regardless of size.

Our aim is to carry a surplus so as to be enabled to fill orders by return mail, and on the day they fall due. Our stock of three-band Italians has stood the test for 20 years. **There is no better.** We have sold The A. I. Root Company two carloads of bees and several hundred queens, and will sell them again this season. We guarantee safe arrival free from disease, pure mating, no inbreeding, and your money refunded if not satisfied.

References: The American Exchange Bank of Apalachicola, Fla.

Insure yourself against loss by placing your order with

The Marchant Bros., . . . Sumatra, Florida

After March 15 our address will be Fitzpatrick, Ala.

The Rarest and Best Offer Yet

A daughter of one of Dr. Miller's best honey-getting queens and the *Beekeepers' Review* one year for only \$2.00. Every one will want a daughter of those famous World Champion Honey-producers. Listen to the record: A yard of 72 colonies produced in one season 17,684 finished sections of comb honey, or an average of 245 sections per colony. This is without a doubt the world's record crop from a yard of that size. Start breeding up a honey strain of bees by using one of those famous daughters this season. This is the first time stock from this noted yard has been on sale. Our breeder, one of the very best in the Gulf States, will breed from one of those best queens; and as his original stock is of the best three-banded stock, wonderful results are to be expected. Let us book your order at this time for one of those fine queens, for we have for sale only something like 500 for June delivery. The queen is well worth all we are asking, \$2.00 and the *Review* for a year.

1000 Pound Packages of Combless Bees for Sale with Queen

Did you ever ask a breeder to quote you a price upon a thousand pound packages of combless bees? If you did, you will have noticed that he took his pencil from his pocket, and began to figure what such a sale would save him in advertising, postage, office help, etc., and the results would be that he would make you a very close price. Now we have that very close price on one-pound packages of bees; and, as is usual with us to charge no profit on supplies furnished subscribers of the *Review*, none will be charged upon those; but our subscribers will get all the advantage of this good buy. Notice that this close price is not for a late fall delivery, but April and May delivery, later deliveries at a less price that will be quoted later, or by mail for the asking. Upon this deal we have two big points: First, the price; second, an old experienced breeder who has spent his life breeding bees and queens for the market. We mention this so you will not get it into your heads that this is a "cheap john" lot of goods, but that they are as good as money can buy, no matter what price you pay. The price is \$16.00 for ten pound packages of those combless bees, each containing a young untested three-banded Italian queen of this season's rearing. Additional pound packages, without queen, one dollar each.

For larger lots ask for special price, stating how many you can use and when the delivery is to be made. They are shipped from Alabama, in light well-ventilated cages, by express. Just a word to the wise: Book your orders early! Address?

THE BEEKEEPERS' REVIEW, NORTHSTAR, MICHIGAN



RELIABLE POWER

Nearly 100,000 Galloway engines in daily use. Long stroke, large bore, heavy weight. Built for hard, continuous engine-users' satisfaction. All sizes, prices, styles. Modern design, few parts, best material, skilled labor. Positively not over-rated. Sold direct. Engine book free. Investigate and compare before you buy.

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"The Profits In Poultry Keeping"

172 PAGE BOOK ON POULTRY FREE

Big FREE 1916 Poultry Guide. Describes Cyphers' popular-priced incubators, 3 styles—8 sizes, 20 years leadership. Write today.

CYPHERS INCUBATOR CO., Dept. 69, Buffalo, N.Y.

New York	Boston
Kansas City	Dallas
Chicago	Oakland

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building. Write for catalog and send us your list of wants.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Car of comb honey in Airline cases.
F. A. ROBINSON, Nampa, Idaho.

Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

Fine extracted clover honey in new 60-lb. cans at 9 cts. per lb. A. S. TEDMAN, Weston, Mich.

Clover-goldenrod-heartsease blend. Light amber, best quality, prices right. Sample, 10 cts.
E. S. MILLER, Valparaiso, Ind.

Amber honey, 7¼ cts. per lb.; sage honey, 8½; clover honey, 10 cts. per lb. in 60-lb. cans.
I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—White-clover honey in 60-lb. cans, packed two to the case, now granulated, at 9 cts. per lb. J. E. HARRIS, Morristown, Tenn.

Best flavor alfalfa-sweet-clover honey; 2 60-lb. cans, \$9.50, f. o. b. here; delivered west of Chicago at 9 cts. a pound. WESLEY FOSTER, Boulder, Col.

Finest clover honey, 8½ cts.; buckwheat, 8 cts., in cases of two 60-lb. cans; 6-lb. can postpaid in second zone, \$1.00. Satisfaction guaranteed.
EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Finest quality of white-clover-basswood blend extracted honey in new 60-lb. cans. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Honey-dew honey for baking or bee-food, 5 cts. by case; ten cases, 4½ cts.; 25 cases, 4 cts. per pound; two 60-pound cans to case; also some fall comb honey, \$2.50 per case of 24 sections.
H. G. QUIRIN, Bellevue, Ohio.

Fine new-crop basswood and clover honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 per can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots.
ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.
SUPERIOR HONEY Co., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

Honey Labels, very choice. Lowest prices. Catalog free. LIBERTY PUB. Co., Sta. D, box 4E, Cleveland, O.

HONEY LABELS.—All styles. Catalog with prices free. EASTERN LABEL Co., Clintonville, Ct.

Best offer takes 50 extracting-combs.
WILLIAM N. MILLER, Dodgeville, Wis.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash.
C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grows in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—500 cases with empty 5-gallon cans, good as new, at 25 cts. each.
GEORGE RAUCH, West New York, N. J.

FOR SALE.—Extractor, practically new, No. 27B, four-frame Root automatic, with 12-inch pockets; late style. PORTER C. WARD, Allensville, Ky.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Hatch wax-press and five Excelsior covers, \$5; also pair marine glasses, \$2.50.
ROLAND HEACOCK, New Milford, Ct.

Hoffman self-spacing frames, in flat, 100, \$3.00; 500, \$13.75; 1000, \$27.00.
SIVELEVETT'S FRAME WORKS, Whitneyville, Ct.

BEE SUPPLIES.—Write for prices before buying. We can save you money. We make a specialty of special size hives and frames to order.
THE M. C. SILSBEE CO., Rt. 3, Cohocton, N. Y.

FOR SALE.—One German wax-press in good condition except followers, \$4.00; one old-model two-frame Cowan reversible extractor, fair condition, \$3.00. THE M. C. SILSBEE CO., Rt. 3, Cohocton, N. Y.

QUIN-COMPACTNESS brood-nest is worked while you sit or stand in angles, or sit on super or "wing"—no reaching across the super. See pages 31, 94, and ad. W. F. MCCREADY, Estero, Lee Co., Fla.

FOR SALE.—125 wood-zinc queen-excluders for 10-frame hives; none of them used over three seasons; 18 cts. each, any or all of them.
PORTER C. WARD, Rt. 1, Allensville, Ky.

FOR SALE.—About 30 lbs. Root's light brood and 80 lbs. Dadant's medium brood foundation, new, perfect condition, at a good discount.
WILMON NEWELL, Gainesville, Fla.

FOR SALE.—200 complete hives with covers and bottom-boards, 10-frame, with all drawn combs; free from disease; factory-made hives; \$2.50 each, complete. GEORGE BRANT, Smithville, Ontario, Can.

FOR SALE.—100 brood-combs in standard wood-spaced Hoffman wired frames, mostly drawn from full sheets, all comparatively free from drone comb; also ten colonies bees; positively no disease.
W. V. BINKERD, West Monterey, Pa.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—70 T-tin supers with inside fixtures, used one season; price, \$20.00.

G. L. ALLEN, Ulster, Pa.

FOR SALE.—Friction-top pails, 5-lb. size, per 100, \$4.50; 500, \$21.25; 10-lb. size, per 100, \$6.25; 500, \$30.00. Low prices on other sizes in bulk. Also furnished in reshipping-cases. Shipped from Chicago. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your orders.

R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

FOR SALE.—At all times, good second-hand empty 5-gallon honey-cans in A-1 condition, packed two in a case, at 25 cts. per case, terms cash, f. o. b. at one of our various factories. NATIONAL BISCUIT COMPANY (Purchasing Department), 409 West 15th St., New York City.

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PATENTS THAT PAY: \$600,812.00 clients made. Protect your ideal! Send data. Advice and two wonderful Guide Books free. Highest references.

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POULTRY

Some farmers in this locality have pure-bred eggs; 50 cts. for 15. Write FRED SALZMAN, Bedford, Ill.

BABY CHICKS. Wycoff, and a few of Barrow's choicest. Prices reasonable.

LINESVILLE PULLET HATCHERY, Linesville, Pa.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize-winners. Eggs for hatching, \$2.00 for 13. \$4.00 for 30. E. B. BROWN, Box 323, White Plains, N. Y.

Poultry Paper, 44 125-page periodical, up to date, tells you all you want to know about care and management of poultry for pleasure or profit; four months for 10 cts.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

FOR SALE.—Winter-laying White Wyandottes 200-egg strain, built up after years of careful selection and breeding from famous prize-winning stock. Setting eggs, \$1.50 to \$5.00 for 15, according to pen. Day-old chicks, in lots of ten or more, 25 cts. each. Place orders now for early delivery.

C. E. BLANCHARD, Youngstown, Ohio.

WANTS AND EXCHANGES

WANTED.—Bees. OSCAR KAZMEIER, Kiel, Wis.

WANTED.—To buy potatoes in car lots.
F. W. DEAN, New Milford, Pa.

WANTED.—800 Hoffman self-spacing frames, size 18 3/4 x 9 1/2. DARLIE HANNA, Brookville, Ind.

TO EXCHANGE.—A camera outfit, size 3 1/4 x 5 1/2, valued at \$45, for honey. D. H. WELCH, Racine, Wis.

WANTED.—100 colonies bees. State condition and cash price. F. W. LINDSLEY, 128 Dartmouth Drive, Toledo, Ohio.

WANTED.—To exchange lath mill and bolter, 24-inch attrition feed-grinder, Economist steam boiler, 12-h.p., for machinery to make honey-sections or engine lathe. GEO. RALL MFG. CO., Galesville, Wis.

Will exchange a seven-jewel Elgin watch for extractor, honey, or bee-supplies. Some bee books cheap. EMIL E. NELSON, Rt. 2, Renville, Minn.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—80-acre farm, 150 colonies bees, 460 supers combs; 8-frame extractor; engine, saw-rig; everything ready for season of 1916, for only \$5000, half cash. HUGHES BEE FARM, Foley, Minn.

Business interests North compel me to sacrifice the prettiest residence in beautiful Melbourne, Fla. Modern, seven rooms, bath, lovely lawn. Apply for particulars, Box 106, Melbourne, Fla. 69926

FOR SALE.—In land of sunshine and flowers, a home of nearly two acres; 30 bearing citrus trees, seven years old; eight-room house. Good location for small bee-yard, also poultry. Write for particulars. J. B. HEER (Owner), Melbourne, Fla

SOUTHERN LANDS are low in price, but high in productive value, make two to four crops a year, and give largest profits in grain, vegetables, fruits, live stock, and dairying. Unsurpassed climate, good markets. Publications on request.

M. V. RICHARDS, Commissioner,
Room 27, Southern Railway, Washington, D. C.

You'd LIKE IT IN NORTH CAROLINA, MARYLAND, OR VIRGINIA. Farm Lands \$15.00 per acre up. Easy terms. On railroad, near market. Write for list. Mild summers, short winters, good markets. If you will send names of two friends interested in The South, will send you a year's subscription free to Southern Homeseeker. Write F. H. LABAUME, Agr. Agt. Norfolk & Western Rwy., 246 N. & W. Bldg., Roanoke, Va.

FOR SALE.—Ideal home for beekeeper; new seven-room frame house; three acres of best garden land in Huron Co. Ideal new concrete bee-cellar, 14 x 24. Honey-house 14 x 24; 25 strong colonies; bees in 8-frame Langstroth hives; 2000 bee-feeders; 4-frame Root automatic extractor, uncapping-can; 300 8-frame Langstroth hives, new, and all necessary appliances to operate an apiary for extracted honey. One of the best locations in Michigan. Will sell bees and supplies separate to suit purchaser. Will sell at a bargain. Write to MRS. J. E. HEBERT, Bad Axe, Michigan.

MISCELLANEOUS

Maple syrup in 6-gal. lots at \$1.15; larger lots, lower price. L. W. KELLOGG, Rt. 1, Sharon Center, O.

ROSELLE, "Florida Cranberry." Seed and magazine 3 mos., 15 cts. FULFORD FARMER, Fulford, Fla.

SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog.
W. N. SCARFF, New Carlisle, Ohio.

WAIT! Before ordering, get our 1916 pure-seed book, printed in four colors; describes our Royal Purple Grand Champion Pure Tested field, vegetable, and flower seeds, fruit-trees, vines, shrubs; plants at lowest wholesale cut prices.

GALLOWAY BROS., Waterloo, Iowa.

PURE MAPLE SYRUP.—I am now booking orders for best maple syrup, made from sap of the rock maple, at the following prices: 1 to 4 cases, \$7.20 per case; 5 to 20 cases, \$6.60 per case. Put up in new gallon cans, 6 cans to case. We shall probably be making maple syrup by the time this ad. reaches its readers.

C. C. PARKHURST,
Rt. 1, Phalanx Station, Ohio.

Seed Oats and Potatoes. Pedigreed 7009, Sixty-day oats. Very early. Heavy yielding. \$1 per bu.; 10 bu., 75c. Hill selected Sir Walter Raleigh potatoes, \$1.50 per bu.; 10 bu., \$1.35; 25 bu., \$1.25, f. o. b. Medina. Sacks free. ABBOTT & BAIRD, Medina, O.

FOR SALE OR TRADE.—One L. C. Smith & Bros. No. 5 typewriter, used very little; all right in every way, and good as new. Will sell for cash or trade for eight-frame Dovetailed hive-bodies, new, in flat, or nailed second-hand in good condition.

GEO. H. FREY, Center Point, Iowa.

Choice Santa Clara Valley dried fruit from grower to consumer at following prices, f. o. b. Saratoga: Prunes, 10-lb. sack, \$1.10; apricots, 10-lb. sack, \$1.35. Maximum express rate on dried fruit, 4 cts. per pound in U. S., except points served only by Southern Express Co. Mr. E. R. Root has visited our ranch, recommends our product, and vouches for our reliability. HERMAN A. CLARK, Saratoga, Santa Clara Co., Cal.

As I expect to do no more advertising this season I take this occasion to say that I have received several shipments of fur having no inside tags, and the outside tags of which have been so badly defaced that it was impossible to tell from whom they came. If any subscribers of GLEANINGS have sent me fur and have not yet received settlement I should appreciate it if they would advise me, when they can identify the fur, and I will remit at once.

GEO. E. KRAMER, Valencia, Pa.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 D. Wolf St., Vincennes, Ind.

FOR SALE.—200 colonies of bees; 5 acres land with orchard. N. L. ANDERSON, box 386, Spearfish, S. D.

FOR SALE.—Fifty colonies of bees.

J. R. MARVE, Bunceton, Mo.

FOR SALE.—175 colonies of bees with good location. F. M. SNIDER, Collbran, Col.

FOR SALE.—75 colonies of bees. No disease. Write J. H. and J. T. CLARK, Munford, Ala.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

Write us for our prices on Italian queens and bees by the pound. Are prepared to take care of you. R. V. & M. C. STEARNS, Brady, Tex.

FOR SALE.—32 good colonies of bees, and complete outfit for producing comb and extracted honey. E. W. PALMER, Catskill, N. Y.

FOR SALE.—At a bargain, 100 colonies. Good location. Full sheets. Up-to-date outfit for extracted honey. "BEE MAN," Williamsport, Pa. 18626

FOR SALE.—We offer to some one in this or a near-by state 50 to 300 colonies, 8-frame, first class. THE E. F. ATWATER CO., Meridian, Idaho.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later. N. FOREHAND, Ft. Deposit, Ala.

Northern-bred Italian queens, untested, \$1.00; select tested, \$1.50. Bees by pound. Safest plans. "How to Introduce Queens, and Increase," 25 cts. List free. E. E. MOTT, Glenwood, Mich.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June, 75 cts. each; 6 for \$4.25; 12 for \$8.00. For larger lots write CURD WALKER, Jellico, Tenn.

Now booking orders for three-frame nuclei Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction.

S. G. CROCKER, JR., Roland Park, Md.

Italian bees, Moore's strain, in new 10-frame dov. hives, painted white, in good condition; warranted free from disease; \$6.50 per colony. Safe delivery guaranteed. N. P. ANDERSON, Eden Prairie, Minn.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.

G. W. MOON, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—50 colonies pure Italian bees, mostly 10-frame; few double-wall, \$4.50 per hive if taken by March 15. Supplies cheap, such as hive-bodies and supers, with drawn comb. Write soon.

R. J. MARTINS, box 135, Afton, Okla.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list.

J. L. LEATH, Corinth, Miss.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

BEES.—250 colonies and equipment, near Sacramento. No disease. Also 40-acre mountain ranch in Sonoma Co., with virgin redwood trees up to 8 feet in diameter; sell separately, or both for \$1600. E. L. SECHRIST, Fair Oaks, Cal.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY CO., Haileybury, Ont.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted.

J. W. SHERMAN, Valdosta, Ga.

M. C. Berry & Co., successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list.

M. C. BERRY & Co., Hayneville, Ala.

We are booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young untested Italian queens, 75 cts. each, or \$3.00 per dozen. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 135, Buffalo, Texas.

Bees by the pound shipped anywhere in the U. S. or Canada. Safe arrival guaranteed. Capacity, 100 lbs. a day. M. C. BERRY & Co., Hayneville, Ala.

I am now booking orders for golden and three-banded Italian queens. Early delivery. Write for prices. D. L. DUTCHER, Bennington, Mich.

FOR SALE.—75 colonies of hybrid bees in 8 and 10 frame hives. Price \$375; with all modern apiary equipment, \$500; will sell bees without equipment. NILES HILLMAN, Greenwich, N. Y.

A few choice three-banded Italian queens for early delivery. Booking orders now. Tested queens, \$1.50 each; breeders, \$5.00 to \$10. Untested, after April 1 to 15, \$1 each. O. E. MILAM, Moore, Tex.

FOR SALE.—Young tested Italian queens, reared late last fall. These we offer for only \$1.00 each as long as they last if taken by April 15. They are beautiful queens and will give you satisfaction. We offer them at this low price in order to move them to make room in our nuclei for queen-cells in early spring. M. C. BERRY & Co., Hayneville, Ala.

Having secured breeders of Dr. Miller, we are offering daughters of his famous strain of Italians at the low price of \$1.50 each. Queens of our own strain at 75 cts. each; 1 lb. of bees, \$1.50; 2-frame nuclei, \$2.25; full colony in 8-frame hive at \$6.50; 10-frame, \$7.50; 200 colonies for spring delivery at \$6.00 each, 10-frame hives.

THE STOVER APIARIES, Mayhew, Miss.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier if necessary.

THE HYDE BEE CO., Floresville, Tex.

QUEENS.—Italians exclusively; golden or leather-colored. One select, untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction guaranteed. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen, \$1.25 after March 20. No reduction for less than 50; 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with ¼ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

FOR SALE.—Italian bees by the pound, and select-bred Italian queens. One-pound swarms without queens, \$1.25 each; 2-lb. swarms without queens, \$2.35 each; 3-lb. swarms without queens, \$3.35 each, and 5-lb. swarms without queens, \$5.35 each. If queens are wanted with swarms, add price as according to price list below. Untested, warranted purely mated queens, 75 cts. each; tested queens, \$1.25 each. All queens are bred according to our plan of breeding only from colonies or queens of the highest standard—those that have made the best record in pounds of honey. These select colonies are the choice of over 1000 hustling honey-producing colonies. Every queen we warrant to be purely mated or we replace her, free of charge. Every pound of bees we guarantee to deliver alive and in good shape, and full weight. We have no disease. Safe arrival and satisfaction we guarantee on both queens and bees in packages. For wholesale prices on either queens or bees by the pound write us. Let us book your order now. Only a small payment down required. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$5; 10-fr., \$6, with queen. HENRY SHAFFER, 2860 Harrison Ave., Cincinnati, O.

HELP WANTED

WANTED.—An experienced apiarist. State wages, experience, and give references as to ability. Board furnished. THE STOVER APIARIES, Mayhew, Miss.

WANTED.—Man, single preferred, to take charge of apiary, 200 hives, and assist in orchard work. HAWTHORNE FARMS CO., Barrington, Ill.

WANTED.—Two young men to help in the apiaries for 1916; prefer young men who want to learn the bee business and are willing to work for reasonable wages and board. I want no one who smokes. Address P. O. Box 124, Wapato, Wash. 12653

WANTED.—Experienced beekeeper familiar with conditions in Georgia or Florida, to handle 75 to 100 colonies, on share basis. Can be employed in orange-grove work, regular terms, when not busy with bees. Good opening for the right man. References required. Box 896, Sanford, Fla.

HELP WANTED.—Can take two clean minded and bodied young men as student help for the season of 1916. Board free for help given, and something more if a good season and help does well. One understanding an auto preferred. Address R. F. HOLTERMANN, Brantford, Ontario, Canada.

WANTED.—Young man with a little experience; fast willing worker—as student helper in our large bee business of over 1000 colonies; crop last year over 105,000 lbs. Will give results of our long experience, and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer.

E. F. ATWATER, Meridian, Idaho.

SITUATIONS WANTED

Single man, age 29, beekeeper, wants position in apiary. No bad habits. All letters answered. M. McLOVICH, Box 243, Rock Springs, Wyo.

Young married man desires position, thoroughly experienced poultryman and beekeeper, also understands farm work; references given.

PAUL S. PATTERSON, Rt. 2, Horseheads, N. Y.

Experienced honey-producer and helper wants to work bees on shares this spring. Nothing less than 200 colonies in good section considered. Write H 6268, care of GLEANINGS, Medina, Ohio.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00, return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular. H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italians bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

You can have your beeswax made into *best quality* foundation; also the wax from old combs or slumgum. We get it all out. On shares or very cheap for cash. New factory. Old liberal terms. Cheapest and handiest transportation for all Northern beekeepers. You always get your own wax back. J. J. ANGUS, 454 Fulton St., Grand Haven, Mich.

Convention Notices

STATE BEEKEEPERS' ASSOCIATION TO MEET AT LANCASTER.

The annual meeting of the Pennsylvania State Beekeepers' Association will be held in the Chamber of Commerce Building, Lancaster, on Friday and Saturday, March 3 and 4. Arrangements have been made by the Secretary, Professor H. C. Klinger, of Liverpool, Pa., and the President, Professor H. A. Surface, Harrisburg, to have a complete program, by scientific and practical beekeepers, that will be interesting to all persons who keep bees, or contemplate doing so. There will be discussions of methods of handling bees to get the best returns, methods of producing comb honey, methods of producing extracted honey, methods of treating bee diseases, and an address by President Surface on "The Habits of the Honeybee."

The Pennsylvania State Beekeepers' Association is the next to the largest beekeepers' organization in America. It has accomplished a great deal of good for the beekeepers and fruit-growers, and has secured legislation and appropriations for the inspection of bee diseases. This work has already resulted in eliminating the dreaded diseases of bees in several counties. The State Bee-inspector will be present and tell something about this service. There will be a full discussion of the State law in regard to marking honey sections, and future legislation will be decided.

Governor Brumbaugh and Secretary of Agriculture Charles E. Patton have been invited to attend. The meeting will be open to the public, and there will be exhibitions of honey, bees, bee products, and bee fixtures. Persons desiring to contribute to these exhibitions are invited to bring their products, supplies, or specimens with them.

PROGRAM

BEEKEEPERS' WEEK, MARCH 13 TO 18, 1916, MICHIGAN AGRICULTURAL COLLEGE, EAST LANSING. MONDAY, MARCH 13.

- 12:40 P. M., Beekeeping as an Occupation,
F. Eric Millen,
State Inspector of Apiaries.
- 1:35, First Steps in Beekeeping, F. Eric Millen
- 2:30, Apparatus, F. Eric Millen
- 3:25, Assembling Supplies.

TUESDAY, MARCH 14.

- 8:00 A. M., General Discussion.
- 8:55, The Colony and its Organization, F. Eric Millen
- 9:50, The Cycle of the Year, Ira D. Bartlett,
East Jordan, Mich.
- 10:45, History of Hives and Frames, F. Eric Millen

- 12:45 P. M., Life History of Queen and Drone, F. Eric Millen
- 1:35, Life History of Worker, Morley Pettit,
Provincial Apiarist, Guelph, Can.
- 2:20, Comb Foundation, Manufacture and Use, F. Eric Millen
- 3:25, Assembling Supplies,

WEDNESDAY, MARCH 15.

- 8:00 A. M., General Discussion.
- 8:55, Races of Bees, Morley Pettit
- 9:50, Artificial Increase—Use and how Made, Ira D. Bartlett
- 10:45, Relation of Beekeeping to Fruit-growers, F. Eric Millen
- 12:40 P. M., Home Manufacture of Bee-supplies, Ira D. Bartlett
- 1:35, A Beginner's Outfit, Morley Pettit
- 2:20, Anatomy of the Honeybee, F. Eric Millen
- 3:25, Assembling Supplies.

THURSDAY, MARCH 16.

- 8:00 A. M., General Discussion.
- 8:55, Making a Start with Bees, Morley Pettit
- 9:50, The Manipulation of Bees, F. Eric Millen
- 10:45, The Production of Extracted Honey, Ira D. Bartlett
- 12:40 P. M., Spring Management, F. Eric Millen
- 1:25, The Production of Comb Honey, Morley Pettit

- 2:20, Wax Production and Comb Building, F. Eric Millen
- 3:25, Selecting a Location for Beekeeping, Ira D. Bartlett

FRIDAY, MARCH 17.

- 8:00 A. M., General Discussion.
- 8:55, The Causes of Swarming, Morley Pettit
- 9:50, The Prime Swarm and its Location, F. Eric Millen
- 10:45, Methods and Principles of Swarm Prevention, Ira D. Bartlett
- 12:40 P. M., Taking off Extracted Honey and Extracting, Morley Pettit
- 1:25, Bee Diseases, Symptoms and Treatment, F. Eric Millen
- 2:20, Requeening and Introducing a Queen, Morley Pettit
- 3:25, Assembling Supplies.

SATURDAY, MARCH 18.

- 8:00 A. M., General Discussion.
- 8:55, Robbing—Symptoms and Control, F. Eric Millen
- 9:50, Methods of Queen-rearing, A. D. D. Wood
- 10:45, Literature on Beekeeping, F. Eric Millen

ANNUAL BEEKEEPERS' CONVENTION, MASSACHUSETTS AGRICULTURAL COLLEGE; FARMERS' WEEK—SECTION 8, BEEKEEPING. MARCH 14-16, 1916; ALL SESSIONS IN ENTOMOLOGY BUILDING, ROOM F, UNLESS OTHERWISE DESIGNATED.

TUESDAY, MARCH 14.

- 9:10—10:10. Demonstrations:—Methods of winter protection; the latest winter cases, unit and multiple; cellar wintering. M. A. C. beekeeping staff—at the apiary.
- 10:10—11:00. Demonstrations:—The rendering process of wax and wax products. B. N. Gates and J. L. Byard, wax laboratory, basement of entomology building.
- 11:10—12:00. Demonstration of apparatus on display. Concessioners and members of M. A. C. beekeeping staff, beekeeping museum, basement of entomology building.
- 1:30—2:20. Beekeepers' Round Table.
- Spraying practices versus beekeeping.
- I. The beekeepers' standpoint, Dr. B. N. Gates, Associate Professor of Beekeeping, M. A. C.
- II. Chemical evidence that bees may be killed by arsenical sprays, Dr. E. B. Holland, Chemist, Experiment Station, M. A. C.
- III. The horticulturist's practices in relation to beekeeping, W. W. Chenoweth, Associate Professor of Pomology, M. A. C.
- IV. The control of insect pests of forests in relation to beekeeping, A. F. Burgess, in charge of Moth Work, Gypsy-moth Laboratory, U.S.D.A., Melrose Highlands, Mass.
- V. Municipal spraying as related to beekeeping, Fred Southard.
- VI. Discussion.

WEDNESDAY, MARCH 15.

- 9:10—10:00. How and when to begin beekeeping, B. N. Gates, M. A. C.
- The care of bees in the spring (demonstration). J. L. Byard, Supt. of Apiary, M.A.C.
- 10:10—11:00. How I dispose of eight thousand pounds of honey, A. W. Yates, Hartford, Ct.
- 11:10—12:00. From among the beekeepers, Mrs. A. H. McCarter, Springfield, Mass.
- Speakers and subject to be announced later.
- 1:30—2:20. Beekeeping in the counties.
- I. Essex County, the original beeyard of the United States; the future, F. A. Smith, Director Independent Agricultural School of Essex County, Hathorne, Mass.
- 2:30—3:20. II. Bees on the farms in Worcester County, C. H. White, Manager Worcester County Farm Bureau, Worcester, Mass.
- 3:30—4:30. Lines for county work in beekeeping, III. Beekeeping displays at the fairs, A. W. Yates, Hartford, Ct.
- IV. Sweet clover in Massachusetts, Dr. W. P. Brooks, Director Experiment Station, M. A. C.
- V. The relation of the county agent to the beekeepers' society, O. F. Fuller, Blackstone, Mass.

THURSDAY, MARCH 16.

- 9:10—10:00. Bee diseases. Question-box. Demonstrations will be given, if desired, at the apiary.
- 10:10—11:00. Annual meeting of the Hampshire, Hampden, and Franklin Beekeepers' Association.
- President's address: "Timely Suggestions to Beekeepers," O. N. Smith, Florence, Mass.
- Honey Packages: a Standard, B. N. Gates, M. A. C.

PROGRAM OF THE FIRST ANNUAL BEEKEEPERS' SHORT COURSE GIVEN BY THE WINONA COLLEGE OF AGRICULTURE, WINONA LAKE, IND., MARCH 20 TO 25 INCLUSIVE.

PROGRAM.

MONDAY, MARCH 20, 1916.

- 1:30. Address, Dr. J. C. Breckenridge, President of the Winona College of Agriculture
- 2:00. Beekeeping as an occupation.
- 2:40. Beekeeping apparatus. A laboratory lecture.
- 4:15. Races of bees.
- 6:45. General lecture on bees illustrated with lantern slides.

TUESDAY, MARCH 21.

- 9:25. The cycle of the year in the hive.
- 1:00. Beekeeping in relation to fruit-growing.
- 2:40. Internal anatomy and life processes.
- 4:15. Wax production and comb-building.
- 6:45. The uses of honey in the home.

WEDNESDAY, MARCH 22.

- 9:25. Where and how to begin beekeeping.
- 1:00. The manipulation of bees.
- 2:40. What the State is doing for the beekeeper.
- 4:15. Cellar wintering and spring management.
- 6:45. The evolution of the hive.

THURSDAY, MARCH 23.

- 9:25. Swarm control and increase.
- 1:00. The production of extracted honey.
- 2:40. The marketing of honey.
- 4:15. Methods of queen-rearing and introducing.
- 6:45. Some great men in the beekeeping world.

FRIDAY, MARCH 24.

- 9:25. Fall and winter care of bees.
- 10:15. External anatomy of the honeybee.
- 1:00. Comb-honey production.
- 2:40. Diseases of bees.
- 4:15. Sources of nectar and the location of bee-yards.
- 6:45. The robbing of bees.

SATURDAY, MARCH 25.

- 8:00. Food of bees and feeding bees.
- 9:00. How to handle bees.
- 10:00. Does beekeeping pay?
- 11:00. Educational and research agencies related to beekeeping.

An opportunity will be given for asking questions at the end of each lecture period. A quiz on the lectures of each day will be held the following day.

The lectures will be given by members of the faculty of the Winona College of Agriculture, assisted by experts and specialists along certain lines of beekeeping.

The course as above outlined will be one of value, not only to amateurs, but to veterans as well. It is the desire to teach the fundamental principles, for if these are understood, the details will follow easily. Dr. E. F. Phillips' book entitled "Beekeeping," will be used as a guide, and it is urged that each student provide himself with a copy. It is published by the Macmillan Co., New York, and can be secured from them or from any of the publishers of bee-journals, or from the dealers in beekeeping supplies.

Various kinds of hives and equipment will be on hand for examination and demonstration.

Winona Lake is located on the main line of the Pennsylvania lines running between Fort Wayne and Chicago. It is connected with Warsaw by trolley, and may be reached via Warsaw over the Big Four lines or the Winona Interurban railway.

A fee of \$1.00 is payable upon enrollment. Board and room, from \$4.00 to \$5.00 per week. For further information address J. C. BRECKENRIDGE, President.

TRADE NOTES

PASTE TO STICK LABELS ON TIN.

We have had many calls for a reliable paste to make labels stick on tin. We have something which we have used extensively, and find it good. Price in pint tin cans, 25 cents. When sent by mail it would weigh two pounds, and parcel-post rate would be according to zone. Ask your postmaster.

It is with pleasure that we call the attention of our readers to the new catalog gotten out by The Rawlings Implement Co., of Baltimore, Md., manufacturers of farm implements. Anything required by the farmer, from wrenches or fence wire to gas-line-engines or wagons, they can supply at a moment's notice. They have not forgotten to mention bee-supplies either—everything and anything that a farmer can possibly need. We have done business with this firm for years, and have always found them reliable and prompt. They will send their catalog "U" on request.

BEESWAX WANTED.

We are now, as always, in the market for choice pure beeswax. Our present price is 29 cts. in cash or 31 in trade for supplies for pure average beeswax delivered at Medina, or any of our branches east of the Mississippi River.

Commenting on the price we pay for beeswax a correspondent in St. Louis writes recently: "In calling on one of the commission houses yesterday, the manager of the concern commenced a tirade against your good selves, stating that you were offering the beekeeper more money for his wax than they, the commission people, would pay."

In packing your wax for shipment pack it in double sacks. Put a tag in with your name and address and number of pounds you ship. Use no paper or other packing. Boxes or barrels may be used if burlap sacks are not available; but be sure they are securely nailed so they may not be broken open in transit.

A BETTER DORMANT SPRAY.

The scale, blight, canker, etc., are no longer dreaded by those who do careful spraying with any of the several standard spray mixtures, altho some give better results than others with a minimum of labor, and labor is the greatest expense in the spraying game. For this reason, the most desirable spray is the one that will accomplish the most in one operation.

You spray with, say, lime sulphur. If the work is thoroughly done you can hold the minor diseases in check; but there are a number of very serious fungous troubles that are found on the trees in their dormant state that lime sulphur might control if it had the proper powers of penetration; but, unfortunately, it cannot penetrate into the diseased tissues of such troubles as collar rot on apple-trees, apple canker, and the brown-rot spores on peach-trees.

From the foregoing it is apparent that there is a need for a dormant spray that will control all of these pests with a single spraying.

Experiments for the past eleven years have proven that all these diseases can be controlled by the use of a miscible oil known as "Scalecide." In orchards where thoro spraying has been done for years with "Scalecide," various forms of blight and canker have almost entirely disappeared.

The B. G. Pratt Company, 50 Church St., New York, have prepared an interesting booklet, "Proof of the Pudding." They will gladly send this helpful book free on request. Write today for the Department XXX.

A VERY INTERESTING BOOK.

There are probably more fancy chickens raised in the vicinity of Mankato, Minn., than there are in almost any other section of this country. This hobby brought forth a big need for a high-class incubator among those poultry-raisers, and resulted in the establishment of a great incubator-factory at Mankato, known as the Mankato Incubator Co. The president of this company, Mr. F. H. Miller, has written a book on the history and development of the incu-

bator, called "The Story of the Mankato." Mr. Miller is himself a practical poultryman, and knows whereof he speaks. The fact that this machine has made good with the poultry-raisers right at home is sufficient evidence to prove that it will be satisfactory to anybody. This year they are offering a greatly improved type of incubator that should appeal to every progressive poultryman. Detailed information and their interesting book, "The Story of the Mankato," may be obtained by addressing a postal to Mankato Incubator Co., Box 837, Mankato, Minnesota.

THE A. I. ROOT COMPANY, Medina, Ohio.

ON THE BOOKSHELF

Der Gefluegel-Zuechter

Those who are interested in reading German publications printed in the United States in the German language may not be aware that there is a German poultry journal published at Hamburg, Wisconsin, said to be the only paper of the kind issued in this country. The purpose of *Der Gefluegel-Zuechter* is to be of service to all Germans who are raising poultry, pigeons, rabbits, and other pet stock. The publishers have spent about twenty-five years trying to create a wider interest in poultry-raising among the Germans of this country.

The eighteenth annual year book, *The "Jahrbuch for 1916,"* has recently been issued. The publishers of *Der Gefluegel-Zuechter*, Hamburg, Wis., will gladly answer any inquiries about combination price of the publication and "Jahrbuch," or will quote subscription rate on the paper alone.

Simplified Beekeeping

Already looking forward to the time when, after the close of the war, England will attempt to become more self-supporting for her food supply, a new manual of beekeeping has been published to encourage beekeeping in the British Isles. Mr. William Herrod-Hempsall, author of "Producing, Preparing, Exhibiting, and Judging Bee Produce," and junior editor of the *British Bee Journal*, has just written and published a little manual entitled "Beekeeping Simplified for the Cottager and Small Holder."

The book does not attempt to be an exhaustive treatise on the subject, but to give concise rules and explanations for the simple operations in the apiary. It furnishes a very good introduction to more advanced methods. Just like other texts on apiculture, the book opens with a short account of the life of the bee and the curious economy of the colony. Then the author discusses hive and tools, with directions for their use, and finally such matters as marketing, wintering, and diseases.

For one who wishes to keep in touch with the latest British methods, the little work is

well adapted; and it is hard to see how any progressive beekeeper in England can get along without it. Its small size and elementary nature well adapt it to the beginner's use universally. There are 48 pages and a large number of illustrations. The printing has been very successfully done.

"Beekeeping Simplified," by William Herrod-Hempsall, F.E.S. Simpkin, Marshall, Hamilton, Kent, and Co., London, 6d. The book may be secured from the *British Bee Journal*, London, for 12 cents; postage 4 cents.

IS BILLY SUNDAY A GRAFTER?

They hate him that reproveth in the gate, and they abhor him that speaketh uprightly.—AMOS 5:10.

In a hotel recently a traveling man said, "Billy Sunday is a grafter—that is all." A man stepped up to him and said, "What is that?" The traveling man repeated the statement. "Can you prove that?" was the next question. "Why," said the traveling man, "everybody knows it." "Well," said the other, "that may be true. I will give you \$5000 to prove it, however." "Who are you?" asked the traveling man; "one of Sunday's kind?" "No," was the reply; "I am a salesman for a brewery. Billy Sunday is doing our business great harm, and my people will gladly give \$5000 to show him up if he's a grafter, and to stop the harm he is doing our business."—From *Civic League Record*, reported in *The Sunday School Times*.



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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. **Big Profits.** Write for Catalog. **THE BEST LIGHT CO.**
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"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

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Wholesale Prices! Save enough to pay your carpenter labor. We sell through catalog only. **Lowest selling expense makes prices rock-bottom. Over 100,000 home owners and 10,000 contractors buy regularly from us. Do the same.**

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We are in a position to deliver big quantities of houses, varied in plan and appearance, on short notice. Standard Homes or Ready-cut Houses. Corporations, Townsite Development Companies, Boards of Trade and others interested are invited to visit our plant at Davenport, inspect our grades, investigate our facilities and look into our wholesale prices.



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All material with complete plans at wholesale, direct-to-you price **\$1026**



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All material with complete plans at wholesale, direct-to-you price **\$957**

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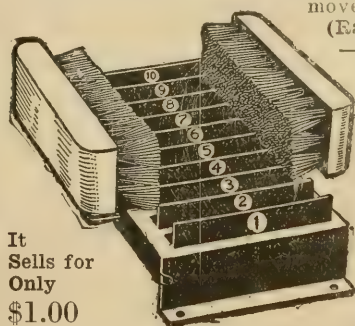
Clean homes demand clean shoes. Dirty shoes with their load of dirt, mud, or snow have been the bane of every woman's life. Women for ages have been slaving to keep the house clean, but it is no longer necessary to endure the hardship imposed by dirty shoes. The time has come when people can and will "wipe their feet before entering." This problem is solved—this longed-for and enjoyable condition is now a happy reality for all. Once again man's inventive genius has conquered and lifted a great burden from women's shoulders.

Every family wants Grab's Automatic Foot Scraper on their doorstep. Replaces unsightly, unsanitary, crude door mat. Mud, dirt, dust, snow, dirt of all kinds, removed in a jiffy. Works like magic—sells like "sixty."

(Ramsey, of Mont., writes: "Only 45 families in town—have sold all.") A positive pleasure for any one to

use—a source of never-ending comfort to the housewife, to all who value cleanliness.

Means less dirt—less work—less drudgery—less shoes to buy—longer life to rugs, carpets, floors—better health. Over half million in daily use. It appeals to everybody. High grade, unquestionable merit, something with class, practical and durable value, unique, odd, and pleasing to the eye. Sells on sight. No forcing, no salesman's tricks or deception necessary. Simply tell the truth—that's all. You have nothing to learn—nothing to set up—no dirty work to do. Seeing dispels all doubts, settles all questions, a sale results. So easy because it solves a mighty home problem, costs so little, does so much, is not a luxury, but an actual necessity. Every person who sees it wants one. (J. Rowan, Mont., writes: "Six dozen received. All sold, and more. Find them easy sellers, as they fill a long-felt want.") This invention is right for the public, right for you. The price of \$1.00 retail is insignificant, everybody can afford it, everybody recognizes immediately its great practical value, can see at a glance that it saves labor, drudgery, health, worry, time, carpets, floors. You have no competition. There is nothing else like it. What others have done you can do, but do your part—get started today.



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Truly a mechanical and scientific wonder. *Automatically removes mud, dirt, dust, snow, from shoe in one operation.* Cleans sides, sole, heel. For men, women, children. *Automatically adjusts itself to any size shoe—any shape.* Attaches quickly to any doorstep or other handy place without screws, nuts, bolts. Neat, attractive, always ready to use. *Rotates for sweeping.* Handsomely enameled. Saves drudgery, time, money, shoes—saves carpets, floors. Mechanical wonder. Weighs less than 3 pounds. Very compact, strong, easy to carry. *Has 7 new patented features not found in any other scraper—10 steel blades—10 dirt outlets—twin adjustable and removable brushes—compound springs.* Can't clog—practically self-cleaning. Guaranteed satisfactory or money refunded.

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Walters, Tex., made \$25 first day; never sold goods before. Arnold, N. D., orders one, then 2 gross; sold 160 in 2 days. Hagen, Tex., sold 100 in 2 days. Webb, Pa., averaged 10 sales per hour. O'Connell, Mont., 25 first day. Mike Bock, Minn., 30 first day. Mrs. Windsor, Mo., "Ship 6 dozen more. First 3 dozen all gone. Have orders for 75 more." G. Rauscher, Minn., "Ship 5 dozen. Sold 36 first morning." G. Froom, Iowa, "I sold 30 first hour."

Hundreds like these—many doing better. You, too, can have money in abundance. Just get started. Quit the shirt-sleeve wages—stop worrying with goods that everybody has or nobody wants. Get Grab's. It's new, wonderful, irresistible.

Write . . . for free catalog and exclusive agency. Better still, send order, naming territory. Satisfaction guaranteed—you can't lose. Investigate anyhow. . . . Today It costs nothing—leads to your success and certain prosperity. Address

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Photographed by Eugene J. Hall, Oak Park, Ill.

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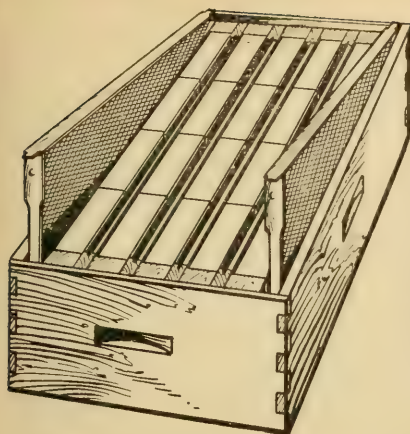
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The New "F" Super and Its Advantages

The "F" Super is one of the new improvements which we have added to our line. It consists of a super holding 4x5x1½ plain sections, and can be furnished in either eight or ten frame size. The eight-frame super holds 28 sections and the 10-frame 32 sections. This super is unlike many of the supers on the market, as it takes standard equipment and offers the beekeeper who at any time might care to change over to extracted honey an exceptionally good item.

It can be used for extracted honey by purchasing 5½-in. frames which will fit the inside of the super, or it can be used for comb honey. This saves the beekeeper from purchasing a whole new outfit should he ever care to change over to extracted honey, and at the same time gives him an A1 comb-honey outfit for the same price as a comb-honey super can be purchased.

Any row of sections can be taken out and replaced with a shallow frame without making any other changes or adjustments. Some of our customers who have been substituting the shallow 5½-inch extracting-frames on each side or in the middle are inclined to believe the bees enter the super much quicker.

Prices of the "F" super will be gladly furnished upon application.

Red Catalog, postpaid

Dealers everywhere

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.
COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells, all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

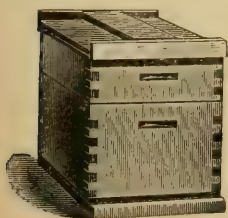
Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



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30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 1913

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white or slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified, as, first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

CHICAGO.—There has been a free movement in honey during the past two weeks; but, as stated in a previous report, prices are weak, and the desire to push sales at every opportunity is apparent. Beeswax is steady at 30 cts. per lb.

Chicago, March 2.

R. A. BURNETT & Co.

INDIANAPOLIS.—The demand for honey of late is light, more especially extracted. We shall have very little to carry over the summer months, if any. Choice white comb is selling at \$3.75 to \$4.00 per case; No. 2 white comb, \$3.50. Extracted of finest quality is bringing 9½ to 11. For wax we are offering 28 cts. cash, or 30 in trade.

Indianapolis, March 3.

WALTER S. POWDER.

NEW YORK.—Very few sales are being made in comb honey, as dealers have sufficient stock. Light extracted has been pretty well cleaned up. Prices range from 7 to 8. There is a fairly good demand for buckwheat extracted at 6 to 6½. West Indian honey is selling at 55 to 60. There is a normal demand for this, but importations are light, hence the high price.

New York, March 7.

ALBANY AND SCHENECTADY.—Lower prices have stimulated the demand for honey, and it looks now as tho the market will be well cleaned up, and no stock to carry over. In fact, there is a scarcity already of buckwheat, both in comb and extracted; this will help out on clover. We quote fancy white at 13 to 15; medium grades, 10 to 12; buckwheat, 12 to 13; extracted, light, 7 to 8; amber, 6 to 7; buckwheat, 6½ to 7.

Albany, March 7.

ST. LOUIS.—Our local honey market has been very dull the past two weeks, both in comb and extracted honey. While supplies here are not large, they are fully ample for the small demand. We are getting from the retail grocers for No. 1 white comb honey \$4.00 per case; light amber from \$3.25 to \$3.50; amber from \$2.50 to \$3.00. Extracted honey in 60-lb. cans is bringing from 7 to 9; Southern amber extracted, in barrels, from 5½ to 6½, according to quality and quantity. Beeswax is firm at 28½ for pure; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, March 6.

Honey report continued on page 5.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

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Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

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Three-banded and Golden Italians from Caraway's Prize Stock. I secured the best stock obtainable; long lived, unexcelled as honey-gatherers, and very gentle. No foul brood nor diseases. Safe arrival and satisfaction guaranteed on all queens in the United States and Canada. State Inspector's Health Certificate with each shipment.

ITALIAN QUEENS			Nov. 10 to May 10			UNTESTED QUEENS BY THE 100:			
	1	6	12	April		\$75.00			
Untested	\$1.00	\$ 5.50	\$10.00	May		70.00			
Tested	1.25	6.50	12.00	June to November		65.00			
Select Tested	2.00	10.00	18.00	Breeders, fair, each, \$5	Extra Select, each, \$10				
Pound Packages of Bees		1	6	12	25	50	100		
1-lb. packages		\$1.50	\$ 8.50	\$16.00	\$33.00	\$ 65.00	\$127.50		
2-lb. packages		2.50	15.00	29.50	58.50	116.00	230.00		
Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.									

Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.

B. M. CARAWAY, MATHIS, TEXAS

You Should Earn \$25 a Colony from Your Bees This Season

This can be accomplished if you have a young prolific queen and a strong colony when the honey-flow arrives. Many beekeepers fail to secure the greatest possibilities from their bees because their colonies are not strengthened and built up early in the season, making it possible for them to take advantage of the honey-flow when it arrives. This should be a good season for clover honey, as weather conditions last year throughout the country were the best for securing a good strong stand of clover we have had for many years.

We now have a large queen-rearing outfit in Florida for the express purpose of supplying you with **EARLY QUEENS AND BEES IN PACKAGES**. We are breeding from queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. You should have this strain of bees in your yard, and insure the placing of each of your colonies on a paying basis. We have a large supply of queens at this time, but as orders are coming in rapidly, we recommend that you provide for your requirements early.

ISLAND-BRED ITALIAN QUEENS

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00

Tested Breeding Queens, \$5.00 and \$10.00 each

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
1/2-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

Prices on Nucleus and Full Colonies without Queens. Shipping Nov.

One-frame Nucleus	\$2.00	Three-frame Nuclei	\$4.00	Eight-frame Colony	\$ 8.50
Two-frame Nuclei	 3.00	Five-frame Nuclei	 5.00	Ten-frame Colony	10.00

Address all communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

The Rarest and Best Offer Yet

A daughter of one of Dr. Miller's best honey-getting queens and the *Beekeepers' Review* one year for only \$2.00. Every one will want a daughter of those famous World Champion Honey-producers. Listen to the record: A yard of 72 colonies produced in one season 17,684 finished sections of comb honey, or an average of 245 sections per colony. This is without a doubt the world's record crop from a yard of that size. Start breeding up a honey strain of bees by using one of those famous daughters this season. This is the first time stock from this noted yard has been on sale. Our breeder, one of the very best in the Gulf States, will breed from one of those best queens; and as his original stock is of the best three-banded stock, wonderful results are to be expected. Let us book your order at this time for one of those fine queens, for we have for sale only something like 500 for June delivery. The queen is well worth all we are asking, \$2.00 and the *Review* for a year.

1000 Pound Packages of Combless Bees for Sale with Queen

Did you ever ask a breeder to quote you a price upon a thousand pound packages of combless bees? If you did, you will have noticed that he took his pencil from his pocket, and began to figure what such a sale would save him in advertising, postage, office help, etc., and the results would be that he would make you a very close price. Now we have that very close price on one-pound packages of bees; and, as is usual with us to charge no profit on supplies furnished subscribers of the *Review*, none will be charged upon those; but our subscribers will get all the advantage of this good buy. Notice that this close price is not for a late fall delivery, but April and May delivery, later deliveries at a less price that will be quoted later, or by mail for the asking. Upon this deal we have two big points: First, the price; second, an old experienced breeder who has spent his life breeding bees and queens for the market. We mention this so you will not get it into your heads that this is a "cheap john" lots of goods, but that they are as good as money can buy, no matter what price you pay. The price is \$16.00 for ten pound packages of those combless bees, each containing a young untested three-banded Italian queen of this season's rearing. Additional pound packages, without queen, one dollar each.

For larger lots ask for special price, stating how many you can use and when the delivery is to be made. They are shipped from Alabama, in light well-ventilated cages, by express. Just a word to the wise: Book your orders early! Address

THE BEEKEEPERS' REVIEW, NORTHSTAR, MICHIGAN

Gleanings in Bee Culture

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H. H. ROOT

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POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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ZANESVILLE.—The market is firm, save that western comb, on account of its tendency to granulate, is being offered at some reduction from standard prices. Best white is selling at \$3.50 to \$4.00 a case, according to condition and quantity. There is about a normal demand for extracted, white bringing 9 to 11; off grades correspondingly less. Producers receive for beeswax 28 cents cash, 30 in trade. Selling prices are largely arbitrary, and vary with quality and quantity.

Zanesville, March 4.

E. W. PEIRCE.

KANSAS CITY.—The supply of both comb and extracted honey is large, and the demand very light—especially on extracted. We quote No. 1 white comb honey, 24-section cases, \$3.10 to \$3.25; No. 2 ditto, \$2.75 to \$3.00; some sales of No. 1 white comb honey have been made at \$3.00; No. 1 amber comb honey, 24-section cases, \$3.00; No. 2 ditto, \$2.50 to \$2.75; extracted white honey, per pound, 7½ to 8; extracted light amber, 6½ to 7; extracted dark amber, 5½ to 6; No. 1 beeswax, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, March 3.

MATANZAS.—We are now paying for extracted honey in our city 44 to 45 cents a gallon.

Matanzas, Cuba, Feb. 21. ADOLFO MARZOL.

Do You Farm?

Then you should read these interesting and practical books on agricultural subjects by writers of proven authority.

Our Farming.—By T. B. Terry; in which he tells "how we have made a rundown farm bring both pleasure and profit;" 6 x 9 inches; 367 pages; paper; 50 cents postpaid; cloth, 85 cents postpaid.

Barn Plans and Out-buildings.—A new and revised edition, giving thoroly practical plans and specifications for agricultural buildings. Well illustrated; 5x7½ inches; 388 pages; cloth, 90 cents postpaid.

Irrigation for the Farm, Garden, and Orchard.—By Henry Stewart, C. E. In these days of intensive agriculture, not only the westerner but any one seeking bigger crops will find this book valuable. Illustrated; 5 x 7½ inches; 274 pages; cloth; 90 cents postpaid.

Talks on Manures.—By Joseph Harris. Covers the subject completely, containing numerous analyses of manures and comparative tables. Illustrated; 366 pages; cloth; \$1.35 postpaid.

Manures and How to Make Them.—By Frank W. Sempers. A standard work on the subject, which has gone thru many editions; 5 x 7½ inches; 218 pages; paper; 30 cents postpaid.

Handbook for Lumbermen.—An elementary treatise on sawing and saw-filing. Illustrated; 6 x 9 inches; 100 pages; paper; 10 cents postpaid.

Turkey Secrets.—The advice of Horace Vose, who for thirty years supplied the White House with its Thanksgiving turkeys. Illustrated; 6 x 9 inches; 60 pages; paper; 25 cents postpaid.

GLEANINGS IN BEE CULTURE,
Medina, Ohio

Deposit your Savings
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The SAVINGS
DEPOSIT BANK CO.
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The Bank that pays 4%
Write for Information

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ASSETS OVER ONE MILLION DOLLARS

Kind Words

You can discontinue the ad., as the results were very satisfactory.

Helena, Mont.

DR. W. M. COPENHAVER.

A KIND WORD FROM A LIFE SUBSCRIBER AWAY OFF IN INDIA.

I am very grateful to you that you are kind enough to send me your paper regularly. The matter it contains is not only beneficial in a business way, but A. I. Root's talk is so full of morals and humanity that whenever the paper comes to me I become so much absorbed in his writings that I feel as if we were face to face. May God bless him with an unusually long life, and greatly enhance his good doings. Reckon me one of your life subscribers, and please say what is the subscription.

MOH'D ABDULLAH HUSSAIN.

Hyderabad, India, Sept. 17.

FROM FAR OFF AUSTRALIA.

Mr Root:—I wish to let you know how I value GLEANINGS. It is a journal that no beekeeper can afford to be without, as it contains all the information he needs to handle bees successfully. We are just now passing thru the hardest time here for the beekeeper, as the weather is very dry and there is scarcely any bloom. Most of the bees are dying. My bees are holding their own with my help and knowledge that I have learned by reading GLEANINGS. When my friends come and look at my bees they say, "Your bees look pretty well;" and when I show them the inside of the hive they say, "Oh! I wish my bees were half as good as yours. How do you manage to keep them up to such a high standard with plenty of bees and brood in all stages, and so even? You should see mine. The brood is scattered over the frames in patches, and often there are four or five eggs in one cell. How do you account for my bees being in such condition while yours are in such good order and looking so well? Your workers are as large as my queens. My workers are small and dull-looking."

My first question is, "Do you take GLEANINGS?" The answer is always "No," just as I thought. Then I say, "There is where you make the biggest mistake, as it is the only practicable road to beekeeping. Bees are bees, it does not matter where you are. In Queensland or America they need the same attention. If you read GLEANINGS it will be like having some one tell you what to do, especially the letter from Mr. Doolittle. He has told me many things about beekeeping that I should have never thought of, and I must not forget you. I have tried several of your directions in different respects, and have always been successful. So you see I cannot be without GLEANINGS. The price of it is nothing compared with what it gives back.

Toowoomba, Australia.

WALTER LINCOLN.

NOW IS THE TIME

To order your supplies, and thus have every thing in readiness for the spring.

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

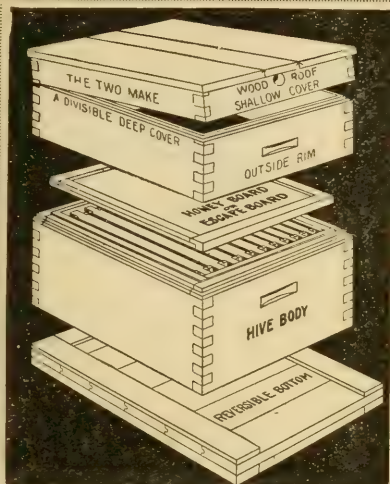
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2146 Central Avenue

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Until You See
Our Catalog

Address

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1631 West Genesee St.



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio Rivers.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order): Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1916 and let us figure with you.

A. G. Woodman Co., Grand Rapids, Mich.



Established 1885

It will pay you to get our 64-page catalog and early-order discount

Beekeepers' Supplies

The A. I. Root Co's brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Best by test. Prices on request.

"Superior" Foundation

Thousands of pounds ready for prompt shipment. Save 25 to 50 per cent by having your beeswax manufactured in-to Weed-process Foundation.

Superior Honey Co., Ogden, Utah
"Everything in bee supplies"

Pennsylvania BEEKEEPERS!

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

BEE SUPPLIES Send your name for new 1916 catalog out in January.
Dept. T. CLEMONS BEE SUPPLY CO.,
128 Grand Ave., Kansas City, Mo.

The Leading House in New England for Beekeepers' Supplies and a Prompt Shipment Promised

I also have some nice grade Vermont Pure Maple Syrup which I can offer at \$1.25 per gallon, f. o. b. my station.

Robert G. Coombs
Guilford, Vt.

I am Anxious to Serve You
L. W. Crovatt, Box 134 Savannah, Ga.

Root's Goods Exclusively
Warehouse, River and Abercorn Streets
1916 Catalog sent on request

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

Candy for WINTER STORES

Why not be sure your bees have enough for winter by giving each colony one or two plates of candy? We have it in large paper plates weighing about two pounds, enough to last a colony three or four weeks. Can be sent by post. Write for prices, also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

Equipment purchased during the quiet winter months may be made ready for busy spring and summer months. The early-order discount pays you interest on your money.

“Root Quality” equipment means BEST QUALITY equipment. The Root bee supplies are up to the minute. The most complete line of bee supplies made.

We sell Root's Goods in Michigan. Order from Root catalog, or we will quote on request. March cash discount, 1 per cent. Beeswax wanted.

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.

“If Goods are Wanted Quick Send to Indianapolis”

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue



YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be *profitable* in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the Blanke Bee Book—send for it today.

Fine Poultry Book also Free

If you keep poultry too, ask us for illustrated poultry book; full of valuable pointers on poultry-raising as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., ST LOUIS, MO.

PACKARD ROADSTER

1912 model; cost new \$4200. I guarantee it in perfect condition, and as good as when it came from the factory; has electric lights, new tires, and an extra tire (wonderful car). If interested, write me; will sell at a big sacrifice.

Fred W. Muth, 204 Walnut Street, Cincinnati, Ohio

"Next Door to Everything"

Reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

March cash orders are subject to a cash discount of 1 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to anticipate all possible requirements.

E. W. Peirce,

22 So. Third St. Zanesville, Ohio

We make an 8 and 10 frame chaff hive, also an 8 and 10 frame single-walled hive. Several styles of supers can be used with these hives.

The prices will please you. Catalog of bees and supplies upon request.

I. J. Stringham . 105 Park Place . New York
Apiaries, Glen Cove, L. I.

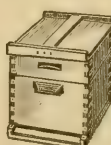
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There is a new and enlarged
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Please write us today for our catalog and special discount to new customers

W. H. FREEMAN, PEEBLES, O

The Whole Country Praises

The New Lewis 1916 Beeware Catalog

FROM CALIFORNIA: "Much pleased with your 1916 catalog. Other catalogs are all right for the man who knows the goods and knows just what he wants. Your cuts, descriptions, and arrangements are so good they will give delight to the amateur or the one who wants to know in detail of new things."

FROM MARYLAND: "We are in receipt of your 1916 catalog and wish to compliment you on same."

FROM TEXAS: "Have heard quite a good many expressions from beekeepers who have received a copy of the 1916 Lewis Catalog, commenting on the beauty of this catalog and upon its improvement over any catalog they have ever seen."

FROM WISCONSIN: "Received your 1916 catalog. It is a dandy."

FROM NEW YORK STATE: "Congratulate you on its neat appearance. Each season it is a little better than the preceding one."

Send Right Now for a New Lewis Catalog

Here are Only a Few of the Distinctive Features Contained in It:

Our NEW METAL-BOUND DIVISION-BOARD in the full-depth size is to be found illustrated, described, and listed.

A very good tool in the shape of a KNIFE FOR SCRAPING AND CLEANING FILLED SECTIONS is illustrated, described and listed.

A WOVEN WOOD-AND-WIRE CHEST, which is a low-cost article with many uses, is illustrated and described.

One page is given over to the RAUCHFUSS FOUNDATION CUTTING-BOX, a practical little outfit for the beekeeper.

Two other articles, a SECTION-HOLDER NAILING-FORM and FRAME WEDGE-DRIVER are offered.

Two whole pages of INSTRUCTIONS TO BEEKEEPERS, by C. P. Dadant, will be found interesting to the old beekeepers as well as the new.

One page devoted to the PROSPECTIVE BEEKEEPER is very interesting, and many new thoughts are presented.

Published only by

G. B. Lewis Company,

Manufacturers of
Lewis Beeware

Watertown, Wisconsin

Get Your Copy Now.

We Want Your Beeswax

Either for Cash or to be Made into

Dadant's Foundation

You are missing something if you are not using our foundation. We guarantee satisfaction in every way.

OLD COMBS and cappings rendered into beeswax on shares. Your share bought for cash or made into foundation. A postal will bring you full information, also our Bee-supply Catalog.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. Root, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. Root, Managing Editor

E. R. Root, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

MARCH 15, 1916

NO. 6

EDITORIAL

The Beekeepers vs. the Smelting Company; Case Continued

IN our issue for Dec. 15, page 915, and again Feb. 15, page 134, we referred to a case where the beekeepers had entered suit in the sum of \$30,000 against a silver-smelting company, of Ontario. The case was to come up for trial last November; but owing to a change in attorneys for the beekeepers the case was continued till this spring or some time in May. We will keep our readers advised.

"Facts About Honey"

THIS is the title of a new honey-booklet gotten out by the *American Bee Journal*, on the use of honey as a food. It not only takes up the question of what honey is, its sources, and its flavors, but how it is produced. It closes with a general discussion of honey, showing how it compares with other food, and how it is actually cheaper, and in many cases more wholesome.

This booklet is sold at a very low price by the *American Bee Journal*, the object being to furnish it to producers of honey so that they can furnish it free to their customers.

For particulars address the *American Bee Journal*, Hamilton, Ill., the publishers of which will be glad to send copies on application.

German Poster Stamps

SOMEWHAT along the line suggested by Walter S. Pouder in his article on page 151 of the February 15th issue are the German poster stamps shown on another page. These stamps are beautifully colored in gold, red, black, blue, green, and yellow, and are the work of Max Mandl, printed and published by Verlag, *Sddeutsche Bienenzeitung*.

For the benefit of those of our readers who do not understand German, we give

herewith the title of the various stamps as they appear in order on the page. Saluting the Queen; In the Bee Nursery; Cleaning out the Hive; The Bee as an Architect; A Bee Funeral; The Guards at the Entrance; The Honey-gatherers; Ventilating the Hive; Issuing of the Swarm.

Death of Dr. Henry Wallace

DR. HENRY WALLACE, editor of *Wallace's Farmer*, Des Moines, Ia., died suddenly while attending a laymen's missionary meeting in his own church on Feb. 22. Dr. Wallace was not only an able editor, but an active Sunday-school and church worker. He was greatly interested in bees; and when we spoke in Des Moines on the subject of the relation of bees to horticulture he was a very attentive listener, and afterward invited us out to his home.

On Sunday we had the privilege of hearing "Uncle Henry" teach his men's Bible class, and a rare treat indeed it was to listen to this modern Gamaliel who had done so much to mold the lives of the men and women of this country—particularly farmers.

Fortunately he leaves some able sons who have been for some years the active managers of the *Farmer*, a periodical that has a nation-wide circulation. He will be remembered by thousands upon thousands for his Sunday-school talks in that paper.

The Death of Herman F. Moore

WE desire to chronicle the death of every prominent beekeeper in the industry as soon as it occurs; but, unfortunately, we did not get the notice of the death of Mr. Herman F. Moore until very recently. This occurred on the 21st of December last, following an operation.

Mr. Moore was a charter member of the Chicago and Northwestern Beekeepers' As-

sociation, and its secretary and treasurer for many years.

He was, perhaps, better known as a honey-salesman. About thirty years ago he distinguished himself by selling honey by sample, and later made deliveries. He was peculiarly successful—so much so that later he went to Chicago where he went into a similar business. Later on he took up the study of law, and, after being admitted to the bar, worked at his profession. But he never got entirely away from bees or honey.

He was one of the best-known beekeepers in northern Illinois. He was a brother of J. F. Moore, of Tiffin, Ohio, a large and successful honey-producer, and formerly president of the Ohio State Beekeepers' Association. The brother, J. F., used to work with Herman F. in selling honey, if we are correct.

Spencer Apiaries Company

THERE have been a number of complaints against this concern, and we have investigated them carefully. We believe that these people are entirely honest, and intend to treat their customers fairly, but for the time being they have been financially embarrassed. During May of last spring their locality was visited by a cold rainy spell lasting some twenty days or more; and as they had some 2000 colonies of bees located in twenty yards in the mountain sections, and the bees being bred up very strong, and having consumed all their honey in breeding, they were unable to get around to all their yards and feed the bees, and hence they lost over 300 full colonies of bees and over 500 queen-rearing nuclei in this cold spell. This caused some of their creditors and help that were working for them to become scared, and they attached considerable of their property, thus tying up all their affairs. As these attachments covered considerable of the money that had been sent them by their customers and deposited in their local bank it put their affairs in very bad shape. They were unable to rear any more queens or return the money for many orders that had been sent them. Their honey crop being very short they were unable to pay all their help, as the prices that could be obtained for their honey were very low. They are holding their crop for a better price. We have corresponded with their local bank, and they have confidence in them that they will make good if given time.

We are placing the advertising of the Spencer Apiaries Co. back into our columns, as we believe they are doing every-

thing in their power to straighten up their affairs, and, so far as we know, they have made adjustments in many cases, and in others they have promised to do so just as soon as possible.

Heavy Snows in the West; Is there a Bumper Crop in Sight?

IN his department in the last issue, Wesley Foster comments on the abundant snow in the hills of Colorado, assuring plenty of irrigation water thruout the warm weather. The snow gradually melts, and the water finds its way into the streams, which are thus kept from drying up.

A prominent lumber company of Chicago, in a circular letter, refers to this condition as follows:

The conditions west of the Cascade Mountains, particularly in Washington and Oregon, also through Idaho, Wyoming, and Montana, are something unprecedented in the extreme amount of snowfall, practically stopping all logging operations. The same conditions exist all through Minnesota and Wisconsin. The side-tracks are all completely snowed in. The snowfall has been three to four feet, with exceptionally cold weather, making it almost impossible for the railroads to operate.

There have been good rains in California. The snowfall in the northwestern states has been exceptionally good, and in the central and eastern states the prospects for clover have never been better. "There's many a slip 'twixt cup and lip," to be sure; but at this writing the year 1916 looks as tho it might be one of the old-fashioned kind—the kind that beekeepers look back on a good many years after when they had that bumper crop.

A Caution Regarding the Use of Bait, Unfinished, and Fed-back Sections

SECTIONS partly filled with honey, and bait sections, should never be sent away to the general market, as they are sure to granulate in a short time; and a single granulated comb in a case of good honey knocks off several cents per section on all the other sections in the case. Comb-honey producers should be exceedingly careful to keep all of these baits and unfinished sections from the previous season out of their best grades of comb honey. Of course dry unfinished combs without honey will not granulate any quicker than those freshly drawn from foundation.

What shall be done with the baits and unfinished sections? If you cannot extract the honey, sell them around home, of course,

or sell them where they will be consumed within a few weeks. But do not, under any consideration, let them go out mixed with the best grades of comb honey into the general market. Better by far to extract the honey and save the dry combs for bait.

To a lesser extent partly filled sections of the same season completed by feeding back diluted extracted honey will granulate more quickly than comb honey produced in the regular way. Such honey should also be sold near home, and sold early.

A New Edition of the A B C and X Y Z of Bee Culture under Way

WE are hard at work on a new edition of the A B C and X Y Z of Bee Culture. The new volume will contain anywhere from 900 to 1000 pages. As far as possible every subject of any importance will be treated fully, taking up all the latest developments. Nearly all the articles on botany will be written by John H. Lovell. Articles on the chemistry of honey will be written by A. Hugh Bryan, formerly of the Bureau of Chemistry, Washington, now of the Arbuckle Brothers, of New York. The anatomy of bees will be handled by Mr. Snodgrass, and the development of the honeybee by Dr. Nelson, as before. The subject of alfalfa will be treated exhaustively. We have gone over carefully the latest works on alfalfa-growing and sweet clover, and the new articles will contain hints on their culture as well as their value as a honey-plant.

While the old volume was the largest bee-book in the English or any other language, the new one will surpass it considerably. It will contain a large number of entirely new subjects as well as large additions to old ones. The old edition is almost exhausted, and it is possible and even probable that the new one will not be ready for the public until some time next fall. The price will be anywhere from \$2.50 to \$3.00; but until Sept. 1 we will accept \$2.00 in advance as the price on the new edition, when it will be advanced to \$2.50 or \$3.00.

The Attitude of Gleanings toward Goldenes

CONSIDERABLE comment has been stirred up over articles appearing in GLEANINGS recently concerning golden Italians. Both sides of the question are represented; but so far the majority have protested against Arthur C. Miller's condemnation of the goldenes.

Strangely enough, one or two have hinted that GLEANINGS suppresses favorable re-

ports of goldenes, and publishes only the unfavorable. It is hardly necessary to deny this, for any one can learn the truth by examining our pages for the last year or two. We received some reports condemning goldenes that we thought best not to publish. Being anxious to give the goldenes a fair chance we accepted a number of interesting reports favoring the goldenes.

We can not believe that the great majority of our readers would think for a moment that we could have any ulterior motive prompting us to suppress facts. We would not mention this matter at all, were it not that so much testimony has come in, pro and con, that it will be simply impossible to publish more than a small part of it.

We believe there will always be a demand, and a good demand too, for golden Italians. They are beautiful bees, and there are many strains of them fully the equal of if not superior to the average leather-colored Italian. Our belief in this matter, as we have stated before, is that the *average* goldenes are inferior to the *average* leather-colored Italians, judging from our own experience and the reports that we receive, both the published and the unpublished. Perhaps time will prove that we are wrong.

The National Convention in Chicago

THIS was held at the Sherman House, as scheduled, on Feb. 22, 23, 24. The attendance was not as large as it has usually been, especially for a point like Chicago. There appeared to be an undercurrent of dissatisfaction over former policies, and as a result some were conspicuous by their absence.

The general discussions were spirited and good, however, and, taking it all in all, entire harmony prevailed.

There were only six or seven delegates present, and the question arose as to whether so small a representation could do business. However, they met in separate session and discussed the question whether the organization should not disband, and leave room for another of national scope, to reorganize along national lines. Wiser counsels prevailed, however, and now it is planned to reorganize; and as a means to that end, an entirely new set of officers were elected as follows:

President, Prof. Francis Jager, of the Minnesota State University, St. Paul; Vice-president, Dr. Ernest H. Kohn, Clover Hill, Ohio; Secretary-treasurer, F. E. Mellen, Lansing, Mich.

As we were not a delegate we were not present at the delegate meetings; but we

were informed that entire harmony prevailed; that all were agreed that, in view of the long and splendid history of the old National of nearly 50 years, it should not be disbanded, but that it should reorganize along lines that would eliminate discord, and then put the organization back where it was in former days when its membership ran up into the thousands, and when its meetings were largely attended. The new officers, we understand, will announce their policies later on.

In another issue we shall endeavor to give a synopsis of the discussions, or at least as much of them as we heard.

Beekeeping Statistics in Indiana

DEPUTY State Bee Inspector B. F. Kinding, of Indiana, has prepared an article for the *Farmer's Guide*, published at Huntington, Ind., under date of Jan. 15, setting forth some interesting statistics gathered from the office of the State Entomologist. The first paragraph of the article contains so much of interest that we are glad to place it before our readers:

Statistics regarding beekeeping are surprisingly incomplete. The most accurate figures that are available in the state are in the office of the State Entomologist. Those records show fairly accurate data of more than 8200 beekeepers. There are more than that number of beekeepers; but how many more, and how many colonies of bees they represent, can hardly be estimated, inasmuch as the government census-takers do not consider bees kept in cities and towns. From the records of the State Entomologist's office the average number of colonies per beekeeper is 13.2. This seems to represent a higher average than there really exists, because the smaller beekeepers do not respond readily to statistical inquiries. From figures available there are in the neighborhood of 140,000 colonies kept within the state. Figuring the average yearly yield per colony at 15 pounds of honey makes a total yearly production of 2,100,000 pounds. This figure may be unfair to the beekeepers, as many of the large beekeepers make a yearly average production of over 40 pounds per colony. Again, thousands of colonies in the state do not return to their owners an average of one pound per colony. Obviously the great difference is accounted for by the difference in the way the bees are kept.

Don't Forget to Enclose a Stamp

As we have noted before in these columns, there are many good beekeepers who will not write for publication on account

of the amount of correspondence entailed. Occasionally we hear mutterings of wrath from some contributor who has been deluged with letters concerning a certain article; and his usual complaint is, aside from the time and energy required in answering the letters, that very few take even the trouble to send the postage for the reply which they expect. Surely those who expect the favor of an answer to a question ought to be courteous enough to enclose postage. It is a businesslike thing to do, and failure to observe this business rule is well nigh inexcusable.

While we are about it we may as well put in a personal plea of our own. We receive from fifteen to twenty inquiries a day regarding some phase of beekeeping, which we try to answer to the best of our ability. Of course, it is possible to use but a very small percentage of these in GLEANINGS, and even those which are answered in GLEANINGS we usually answer also by letter, since in many instances if the questioner had to wait until he saw his answer in GLEANINGS he would get over wanting to know about it. We should greatly appreciate it if our friends who write us these letters calling for answers to questions of a personal nature that would not be of much benefit to any one else would remember to enclose a stamp.

Yes, a stamp is a small thing; but a lot of them together look pretty good. We shall not refuse to answer a question simply because the questioner forgot to send a stamp, but we can answer it more cheerfully if we see that pink stamp with the question.

Information Wanted

WE have room for a few more good live articles on the question of out-apiaries, for our special number for May 1. As we have stated before, we pay rather more for material used in these special numbers, for we are anxious to get the best obtainable. It is not quantity but quality that we want.

The great majority of out-apiaries are run for extracted honey. Who is running one or more out-apiaries for comb honey? We want information concerning the prevention of swarming in out-apiaries.

So far we believe that Allan Latham holds the imaginary cup for operating bees on the let-alone system. Out-apiaries require a different management altogether in order to reduce the cost of the labor and of the transportation. In the March 1st issue there were several discussions on extracting at out-apiaries and at central extracting-

plants. As nearly as we are able to determine, the central extracting-plant system, perhaps because of the increasing practicability of the auto truck, is increasing in popularity. We should like to hear from some of the larger producers who run out-apiaries, as to the probability of the central extracting-plant spreading foul brood. Is the central plant more dangerous than a separate extracting-plant at each apiary, or than a portable outfit carried from yard to yard?

In a letter received recently from E. F. Atwater, Meridian, Idaho, he stated that there are a good many beekeepers who would like more complete information on the construction of large solar wax-extractors for out-apiary use—extractors large enough to handle the output of a large apiary, also those used at a central plant, somewhat on the order of the large sun extractor described a few years ago by Mr. R. C. Aiken. This is a field which has been somewhat neglected of late; and since a sun extractor is automatic to a certain extent, and, if well constructed, nearly takes care of itself, this is a profitable theme for discussion in the May 1st issue.

All articles should reach us by April 1.

Bee Inspection in Arizona

A VERY interesting report is that from State Apiary Inspector J. P. Ivy, to the Governor of Arizona, for the inspection work during 1915. A copy of the State inspection law is given in Section 1, of which the salary of the inspector is fixed at \$1000 a year, and privileges given for the appointing of deputies, not exceeding three, whose salaries shall be fixed by the inspector, not to exceed \$4.00 a day.

Section 7 is interesting, and is as follows:

Sec. 7.—No colony of bees shall be shipped or transported into the state for delivery to any consignee residing within the state from any state or foreign country having an inspector of apiaries or other officer charged with the duties commonly performed by an inspector of apiaries, unless said colony be accompanied by a certificate in writing from such officer, stating that he has inspected said colony, and that it is free from infectious or contagious diseases. Whenever a colony of bees shall be shipped or transported into the state from any state or foreign country not having an inspector of apiaries or other officer charged with the duties commonly performed by an inspector of apiaries, the consignee shall, upon the receipt of said colony, forthwith notify the state inspector of apiaries of its receipt, and

the state inspector of apiaries shall forthwith inspect the same. No transportation company or common carrier shall accept for transportation into the state, or shall deliver any colony of bees from a state or foreign country having an inspector of apiaries or other officer charged with the duties commonly performed by an inspector of apiaries, to any consignee residing within the state, unless such colony is accompanied by a certificate of inspection as heretofore provided. No common carrier shall be liable for damages to the consignee or consignor for refusing to receive, transport, or deliver such colony or colonies when not accompanied by a certificate of inspection as heretofore provided. No beekeeper within the state shall move bees from one county to another within the state without a permit from the inspector. Nothing in this section shall be construed to prevent the transportation or delivery of queen-bees when not accompanied by brood or comb, or bees shipped in wire cages when not accompanied by brood or comb. Any railroad company, common carrier, or any person that delivers any colony or colonies of bees into the state shall, upon its arrival, immediately notify the state inspector of apiaries and give the name and address of the consignee.

Mr. Ivy's letter to the Governor submitting his report is brief, but full of "pep."

Sir:—I have the honor of submitting my report as your Apiary Inspector for the year 1915.

We have installed 34,147 swarms of bees this year; 23,208 swarms in Maricopa County, 4124 swarms in Yuma County, 3131 in Cochise County, 2594 in Graham County, and 1090 in Pinal County.

We have had to contend with an outbreak of foul brood in Cochise County, and have four yards under quarantine at this time. We found 43 swarms in one yard, 18 in one, 11 in one, and 1 in another. They were all promptly destroyed by burning them.

One person broke the quarantine during the year, and he was promptly brought into court. He pleaded guilty and was fined 30 days and \$50.00.

We collected from the five-cent inspection fee \$1073.35 during this year, which was turned into the State Treasury for the account of the Apiary Inspection Fund.

I will send you a tabulated report when we have them printed.

Respectfully submitted,
J. P. Ivy, State Apiary Inspector.

We do not quite understand the meaning of the word "install" in the second paragraph. We wonder if this means inspected. Probably not, for the fund collected from the five-cent inspection fee, \$1073.35, would give 21,467 as the number of colonies inspected.

Following itemized accounts of receipts

and expenditures is a list of beekeepers in five counties. It is interesting to note that there are twenty beekeepers who have over 500 colonies, and a good many others who have almost 500.

.....

The Comb-honey Situation; a Reply to Editors Bixby and Townsend

IN the West, comb honey is apparently pretty well cleaned up. In the East there are large stocks of it left, and some medium and fair grades are being offered at retail at 12 and 15 cents. Indeed, we know of one place in the East where a beekeeper was peddling comb honey out at 7 cents a section. Think of it!

Some lots of comb honey were displayed in the streets of Chicago on the sidewalks at 10, 12, and 15 cents a pound. The temperature outside was below freezing, and of course this honey was taken in at night. This change of extremes in temperature, and the constant handling back and forth, will, of course, make it granulate within a short time. Then it will have to be sold at any give-away price if at all.

There is going to be a large quantity of granulated comb honey this year, simply because there is so much of it, and because the dealers do not know any better than to put it in a refrigerator or in a cold-storage room where the temperature goes up and down between great extremes. As soon as these lots of granulated comb honey are sold, the market on good comb honey will improve, and a better demand may be expected later on.

The question may be asked why there is so much comb honey in the market for sale at such low prices at this time of the year, when formerly the market has been fairly well cleaned up. There are two reasons: First and foremost was the large production of clover comb honey after the 15th of August—at least a whole month after the usual crop is off the hive and ready for the market. Up to the first of August on account of the continuous rains up till then it looked as if the crop of *comb* honey would not be heavy and prices good, and we so stated on page 696, Sept. 1st issue, and also on page 783 of our issue for Oct. 1, 1915. We said, "There is probably more comb honey than was expected early in the season. It is now being unloaded, and it will bring a good price." And yet Editor Bixby, referring to this same editorial in his February issue of the *Western Honey-bee*, says, "In GLEANINGS for Oct. 1 the leading editorial said that on account of the

big crops(?) prices would be 15 to 20 per cent below 1914, while at the same time the government's market letter showed prices only 2 to 3 per cent off. This cost the beekeepers of New York state alone thousands of dollars, but enabled the largest buyers of table honey in the country to get the cream of the New York comb-honey crop for about 11 cents per pound, which is now retailing for 20 cents per section or more. Well, 'misery loves company.'

Editor Bixby did not read our editorial carefully, and Mr. Townsend evidently took what Mr. Bixby said for granted, and copied it in his issue for March 1, page 88.

While we did say that prices on *extracted* honey would run from 15 to 20 per cent lower, we also said that *comb* honey would bring "good prices." But we did not know then, and no one else did, that the late flow of clover after the long rainy spell had yielded so large a crop. Of course when this honey was dumped on the market that was already well supplied prices dropped. It was the late crop after the summer rains that caused the market to sag, and not any editorial in GLEANINGS or any other publication. If editors Bixby and Townsend will read our editorial again they will see that they misquoted us, but not intentionally, as we believe. There was another cause that tended to bring about this condition of low prices—namely, the enormous fruit crop which could not be exported on account of the war. This tended greatly to affect the price of comb as well as extracted honey, for fruit is a strong competitor; and when there is an over-supply of it, the careful housekeeper who has to count her pennies very closely will, if honey is high and fruit low, buy fruit instead.

The lesson that comes to us now is that we should not lose our heads, and sell our comb honey at retail for 7 cents, but look forward to the future, and keep our product in a dry warm room where an even temperature can be maintained at 75 to 80 degrees and sell it after all the stock now on the market has granulated, and when there will be a demand for good comb honey.

As we stated in our last issue, page 176, the pendulum has swung the other way. For several years back there has been a scarcity of good comb honey, and we have urged a more general production of it. So many have now gone into it that, if they produce as much next year as last, there is liable to be a demoralization in prices. Extracted can be carried over till another year; but this is not true of comb honey, except at a loss.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



THAT'S a good story, p. 176, about the bees, melon-rind, and darkey, but for one thing. Did you ever know bees away from home feeding on sweets to sting when disturbed or kicked?

At a uniform temperature of 85 degrees "there is some danger of the combs sagging and leaking," p. 89. That's new to me. I always thought I'd like to keep my sections at 90 or more. Please tell us more about it.

HONEY that is too thin may be thickened by heating, but that endangers the flavor. W. F. Reid, *British Bee Journal*, p. 11, offers this scheme: Take dried apples and give them an extra drying in a slow oven; then put them in the honey, and the water of the honey will be absorbed by the apples. Stewing the apples will then give a fine sauce.

DR. PHILLIPS, at the Chicago convention, treated some of us beekeepers, among other things, with a dish of dasheens, the first I ever tasted. They're good; but why has no one before told us that the flavor much resembles that of boiled chestnuts? [A. I. R. has several times referred to the fact that dasheens taste like roasted chestnuts. They have really a combination flavor of the baked sweet potato, common potato, and roasted chestnuts.—ED.]

FOR years I had held that a syrup of 5 sugar to 2 water was equivalent to honey because it seemed as thick. Then to please J. L. Byer I backed down as much as I thought respectable. Now J. E. Crane comes at me, p. 141, and I've got to back down some more. Well, I don't know just where to stand, but not with Byer. I don't believe a pound of sugar with more or less water can take the place of a pound of honey. So there!

G. M. DOOLITTLE bequeaths to me the question, "Do you believe the earth is drying up?" page 144. Well, I can testify that for the past 80 years one decade has had about as much wet as another, and I see no reason why it should not continue. Lately I saw the opinion of a scientist that we might expect such continuance; but a higher authority has entirely settled the question for me in these words: "While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease."—GEN. 8:22.

A. I. ROOT, p. 214, not every housewife by any means knows how to make *good* cottage or Dutch cheese—"smearcase" as we called it in Pennsylvania. They don't know the "finger test" Mrs. Root gives, and scald it too hard. A safer way is to pour boiling water into the milk, stirring it around, then letting it stand a few minutes before draining. Some use butter with it, making it into balls. We like it best merely salted, with enough rich cream to make it into a sort of mush. For my personal eating I add honey.

ARTHUR C. MILLER in his list of puzzles, p. 146, throws my way Case 1, in which the bees sealed queen-cells in 2 days and 5 hours after brood was given them. That's easy. When all and more pap has been given the young queen than she can possibly use, there's no use to wait for further growth, and in a few cases I've found sealed cells containing very small grubs. But then, like the trouble-maker he is, he must go and open those cells, and find in them grubs of unlawful age. Well, what more would you expect from bees whose owner constantly sets them the example of setting aside all traditions and precedents? By the way, Arthur, Case 2 is not so very uncommon. Bees sometimes endure, and even start, cells in the presence of a virgin, and I *think* that the virgin herself pays little or no attention to cells until near their maturity.

INFORMATION as to shipping bare bees and bees on combs, p. 136, is right to the point. Somehow it's hard to get rid of the idea that bees already on their own combs are in a little better condition to get to work than what the Germans call "naked bees." Then, too, the brood. Even if all the unsealed brood is destroyed, the sealed brood will go right on emerging for 13 days, and in that 13 days the number of bees may be doubled. With bare bees by express no young bee will be added inside of 21 days after arrival.

But when you talk about bees in car lots, not one beekeeper in a hundred—perhaps not one in a thousand—is interested. As to shipping bees by the pound, very many are interested, and every one *may* be at some time. Thousands of beekeepers might want a few pounds who would never dream of getting a car lot. Any one with a few colonies might ship a few pounds of bees, few a car lot. So what's the use of comparing the two when we're interested in only one?

J. E. Crane

SIFTINGS

Middlebury, Vt.



Just fifty years this month since I bought my first colony of bees.

* * *

Mr. J. L. Byer, page 95, Feb. 1, says it takes a full pound of sugar fed to bees in syrup to equal a pound of sealed honey for winter stores, and he is right.

* * *

We have been using the Rauchfuss foundation-cutting bar put out by the G. B. Lewis Co., and find that it works very nicely for cutting foundation for sections. One can cut up strips of light foundation very accurately and rapidly.

* * *

The foul-brood situation has greatly improved in Vermont. A good crop the past year has greatly encouraged beekeepers. The value of sweet clover as a forage crop and for bees is of increasing interest. It was out of the usual order to hear co-operation discussed in an eastern convention.

* * *

The Vermont Beekeepers' Association met in the Addison House parlor, Middlebury, on Feb. 17. The day was mild, and attendance good, with a good degree of interest in discussions. I notice the attendance at bee conventions follows quite closely the size of the honey crop of the preceding season.

* * *

I believe the name that A. C. Miller has chosen for his method of introducing queens, namely, "the distress method," decidedly good—see page 107, Feb. 1. Doubtless the distress of the bees is a large factor in the success of the use of smoke. We may introduce queens safely by causing distress by other causes than the use of smoke, as, for instance, making the bees suddenly aware of the loss of their queen or their brood and stores.

* * *

That is a decidedly good article on European foul brood by Timberline Riggs, page 102, Feb. 1. He has mapped out very closely the plan I had thought out for our own yards the coming season should this disease again appear, as it doubtless will. If but little disease is found in a hive, reduce the size of the brood-chamber so it will be crowded. If a considerable number of cells of diseased brood are found, remove or cage the queen for ten days and crowd

them on a few combs. If very bad, unite several and remove or cage the queen and make one strong colony. Better give a young queen. All should have good strains of Italian bees, for best results. Really it is little more than carrying into practice that old command, "Keep all colonies strong."

* * *

On page 157, Feb. 15, the short article by H. H. Root is of more than ordinary value. Various experiments have been made in the past to show the value of bees in an apple orchard, but this I believe is the most satisfactory of any I have seen. However, this could be improved upon. Had Mr. Root taken two branches of nearly the same size and carrying the same number of blossom buds as near together as possible on the same side of the tree, and then counted the number of apples maturing on each branch, the one being covered with mosquito-netting and the other without protection from insects, we should be able to learn the exact value of the work of the insects in the fertilization of the flowers, and just what proportion of our crop is to the credit of insects, mostly bees.

This method of experimenting should be made on a large variety of apples, as it seems probable that a great difference will be found to exist in different varieties in their ability to become fertile without the agency of insects. It is also possible that many varieties will show a marked difference in different localities.

It is significant that of the five apples that appeared to have set under mosquito netting in the experiment by Mr. Root three failed to mature. Had these three been cut open it is probable that they would have been found seedless, the result of imperfect fertilization. I was interested last fall in cutting open a small undersized MacIntosh red apple when I found it quite seedless from lack of being properly fertilized when in flower. This led me to examine small and imperfect apples of another variety. Some were of irregular or abnormal shape, one side developed while the other side had not developed. I found on cutting them open that the very small apples were without seeds, while the irregular-shaped ones would have one or two seeds on the side that had developed most, while the dwarfed side contained no seeds. This shows that partial fertilization had caused the fruit to set, and develop in an imperfect way, but did not produce any perfect fruit.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



FRIO COUNTY BEEKEEPERS' ANNUAL MEETING.

The writer had the pleasure of being in attendance at the annual meeting of the Frio County Beekeepers' Association at Pearsall, Texas, Feb. 7, at which an enthusiastic bunch of beekeepers were present. The outlook for honey, altho very bright in the early part of the year, had been somewhat disturbed by a late freeze in the early part of January. The earlier shrubs had already been in bloom, and the famous huajilla (uah-he-ah) was "tagging"—a term used for "budding" by the beekeepers of the southwest-Texas country; but these were destroyed by the frost; and as the huajilla is the principal source for surplus there was considerable gloom in the meeting over the prospects. Prior to the freeze, beekeeping operations were already well under way. There prevailed a hope that at least part of the losses sustained during the preceding year of practical failure might be recouped by a good crop this year. The later-yielding vegetation was not affected, it seems, and there is still hope that even the huajilla and other shrubs injured by the frost so early in the season may again put out with renewed vigor and still yield well.

The officers elected for the ensuing year are, Frank Talbot, Pearsall, President; O. E. Milam, Moore, Vice-president; B. I. Gilman, Pearsall, re-elected Secretary-treasurer; and R. A. Little, Pearsall, re-elected County Foul-brood Inspector. Among other matters before the association was a request to the writer, as a member of the Texas legislature, for an address on the subject of the foul-brood work of the state, and particularly the foul-brood appropriations and the efforts that so successfully aided in obtaining in all \$13,000 for this work for three years.

ITINERARY BEEKEEPERS' MEETINGS IN TEXAS.

There are at present something like twenty county and district beekeepers' organizations in Texas, and a number more organizing. Each of these organizations has a certain stimulating effect in its respective territory toward an uplift of the beekeeping industry. Besides, each of these associations has a county or district foul-brood inspector to aid in the inspection work, and thus not only protect the beekeepers' interests of the community, but to aid in carrying out more effectively the state foul-

brood-eradication work. The gatherings, field days, and beekeepers' picnics all have a salutary effect.

Another valuable step in addition to this great number of organizations will be the holding of consecutive meetings of as many or all organizations in rotation, one following the other in such a manner that a lecturing staff can attend a large number of such gatherings on a single trip.

It is contemplated at present to arrange for such an itinerary in the very near future, actuated by the probability of a visit to Texas of a number of distinguished northern beekeepers. Among them are expected such beekeepers as C. P. Dadant, E. R. Root, Dr. Phillips, Frank C. Pellett, and others. These will be joined upon their arrival in Texas by a number of prominent Texas beekeepers who will make the rounds to the various meetings with them. State Entomologist Paddock, LeSturgeon, and the writer are among those who expect to join on the trip. Dates of meetings and other details are being worked out, and will be made known as soon as completed.

It is to be hoped that this will not be the only itinerary of this kind, but that there may be others during the year.

SPRING CLEANING-TIME HERE AGAIN.

At this time of the year my enthusiasm in apiary work runs high, and there is nothing I enjoy more than to take trips out to the apiaries on warm days in early spring for the purpose of cleaning up the yards and putting everything in apple-pie order. This spring cleaning is of the utmost importance to us; and preparing for the year's work makes this decidedly more pleasant and agreeable. Both the clean yards, and the finding of the colonies in excellent condition, beginning their yearly operations by the rearing of brood and building up to rousing strength for the honey-flows later, increases our enthusiasm. Under these circumstances the bees must obviously receive the best of care. Examinations of the colonies should be carefully made, primarily for the purpose of ascertaining their probable needs, in stores or otherwise; and allow me to emphasize again the importance of "cutting out" all the useless drone comb as it is discovered during these examinations. It is true that I have repeatedly mentioned this during the last several years; but it is equally true that there still remains much drone comb to cut out. Cut it out!

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The condition of bees in this locality is several per cent better than at the same time last season.

What is "spring dwindling" but the dying-off of old bees faster than young ones are being hatched? The better the weather and the harder they work very early in the season before brood begins hatching, the faster they dwindle.

The amount of stores a colony contains may be seriously misjudged by lifting the hive as a test. When breeding up rapidly in the spring the brood in itself makes considerable weight, which may be mistaken for stores, causing serious results.

The sudden warm weather coming after the heavy rains has advanced the season a little too fast for the best interests of the beekeepers. Orange buds are developing rapidly, as well as sage growth—a little too rapidly for the increase in bee force.

About an inch of rain for February. I suspected just such a condition when the heavy flood rains stopped so suddenly. I should not be surprised, however, to see considerably more rain in March, and some cold, disagreeable days when we need it warm.

The best and safest way that I know for introducing very valuable queens is as follows: Place two or three frames of hatching brood (no bees) in a super over a very strong colony, with a screen wire between the colony and the hatching brood. Turn the queen loose on the hatching brood. After a few days the brood will be mostly hatched, when the super may be set off on a bottom-board, and the young bees allowed to go to work.

Nothing could show the prejudice against the golden Italians more clearly than the article of Arthur C. Miller, page 147, Feb. 15. It is said of John Randolph, that, while making a speech in Congress against a tariff on wool, he made the remark that he would go a hundred yards out of his way any time to get to kick a sheep. Mr. Miller says a queen from golden stock will produce perfectly gentle bees one season and

extremely cross ones the next. [See editorial.—Ed.]

There is a mistaken idea which is by far too prevalent in the East, and I notice at least one bee journal is guilty of the offense; and that is, calling sage honey *white* sage honey. As a matter of fact, a very small percentage of sage honey is produced from the white sage. Honey from the button (or black) sage is white—when pure, extremely white; but it should not be called a product of the white sage.

The sumac growing in the coast district is entirely different from that of the inland foothill district. I have been told that the sumac of the coast region blooms in July, while I know it blooms in this section in May. I have now found that the coast-region sumac differs greatly from the inland variety, the coast variety being more of the nature of the sumac of the East. I am led to believe the coast-region variety is a much better honey-plant than that of the inland.

Mr. Editor, in your comments on my article, page 150, Feb. 15, you say: "If bees can gather a liberal supply of honey within $\frac{3}{4}$ of a mile from the home yard, and that supply keeps up, they will go no further than that." In this you are entirely correct. In 1905, when the honey-flow was at its height, I could not find a bee further than half a mile from an apiary in a fine sage range belonging to my uncle, for the simple reason that they had plenty to get nearer home. You are also correct as to the aroma from the orange. There are very few blooming plants that produce aroma equal to that of the orange, and it is an easy matter to scent it a distance of five miles at night when the breeze is sufficient to carry it on the night air. But that bees will starve to death within one and a half miles of a good honey-flow I can hardly believe.

Hive government is rarely spoken of in our bee-journals, and seems to be as little understood by all as any one thing in connection with bee culture. We know certain laws of nature followed by bees relative to their conduct in certain cases, such as superseding, brood-rearing, and the like; but to understand what force rules their actions seems never to have been solved. That

there is some means of communicating seems probable—or are they like bashful lovers who understand without words? In early spring the first loads of pollen and honey cause an immediate response in the brood-rearing line. The increased flow is followed by increased action in the same line. The queen follows the action of the colony to a great extent, and distributes eggs largely to the extent of the activity of the colony. But why? What is the impelling force that drives them to their best efforts? In the government of man we know the forces are organized to depend on the leadership of others; but with the bee there seems to be no leader of the forces, but all act as with one accord in the proper direction without confusion or loss of time. Yet there are some actions that seem to point to a ruling power. Take, for instance, a colony that has an old queen and the brood-chamber filled with honey. Introduce a young queen and there is immediate action in the direction of getting the honey removed out of her way. There seems to be as much difference in the action of colonies at times as there would be with men in a factory with a change of foreman. Whether man will ever be able to solve the mystery is hard to say; but we do know that the government of the colony seems almost perfect, and we cannot but wonder.

I have promised a correspondent to give my method of swarm control thru these columns. This correspondent suggested that I give it thru this channel, as it might be of profit to others. He suggests that the very best plans in use are only partially successful, in which I most heartily concur. A plan followed by one beekeeper, and made a decided success, may be turned into a decided failure by another, for the reason they have not had the necessary experience with the plan. If a farmer hires a clerk from a store who has never been on a farm, telling him to go and hitch up the team to the cultivator, and plow corn, the clerk would be at a loss to know how to go at it. The farmer could tell him all about it; but until he saw the work actually performed he would know little; and until he had tried the work he could not become an expert. But I started to give my plans.

In the first place I consider young queens one of the greatest factors in swarm control; the other most essential thing is *room*—plenty of it. By room I mean what the word implies, both storage and breeding. I try to leave sufficient stores on every colony in the fall, not only to carry them thru the

winter but leave a surplus of from ten to twenty pounds on each colony. It is preferable to leave this over an excluder, as the bees will then cluster below, where there is more or less comb room, and not so much on frames of cold honey. With empty comb room within the cluster, breeding will start at the earliest possible date. As soon as breeding is well started the queen-excluders should be removed, and the combs containing the smallest quantity of honey placed in the middle of the upper super, allowing the queen the free range of the hive. When the lower section of the hive has been filled with brood the queen will go into the upper section of the hive and fill all available space, which, if the combs have been arranged as I have said, will force the greater amount of brood into the center of the upper section of the hive, the outer frames containing most of the honey. After breeding has been well started above, drone combs will begin to appear between the upper and lower frames. By this time in this part of California the honey-flow will be approaching, all of which the bee seems to understand fully. The condition of the colony has now begun to assume the proportions of a lack of room. The bee by instinct knows there is plenty of stores; and the brood that is soon to hatch will cause an overabundance of bees for the storage room at hand, and swarming is the logical way out of the difficulty.

But now is the time to thwart their plans by extracting the upper outside combs clean of all honey. This immediately discourages the idea of swarming, and gives them empty combs to store in, which is *very* essential, as it diverts them from the idea of swarming to that of storing.

The honey-flow is now at hand. The brood should be put below to the extent of ten full frames, raising the lower side combs, which will very likely contain part brood and part honey. The excluder should be put on at this period, which, as the brood hatches, will give an additional amount of room above. When the upper section has been well filled with honey, and sealing begun, it should be raised, and a super of empty combs placed beneath. By the time the last set of combs is beginning to be sealed, the upper may be extracted and set back under the partly filled one. In this manner there will always be storage room supplied in abundance, and little thought will be given to swarming. It is much harder to control swarming where a single surplus super is used than with two. With old queens being superseded an additional trouble exists.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



THE FOUL BROODS!

"Have you read what Orel L. Hershiser has to say about European and American foul brood, p. 11, January 1? If I understand Mr. Hershiser he classes the European as the worse. I have not found this to be so. To be sure, this disease will spread in a colony more rapidly than the American. But with two or three foul cells of the American in any colony, that colony is as surely doomed as if the number were five thousand. But I have had many colonies with from 500 to 5000 foul cells of the European kind that got entirely well without any treatment whatever—not even a change of queens. Then I claim that this type of disease travels in a sort of epidemic fashion like scarlet fever, measles, etc.; and after it has once gone thru any section of country that section is nearly or quite free from this disease for quite a term of years."

I should hardly wish to lock horns with so good an authority as O. L. Hershiser; but he seems to be uncertain of his ground himself, in view of the testimony given by the Dadants and Dr. Miller. He says that if the Dadants are right "we are wasting valuable time by employing the shaking and brushing methods." And we are so wasting, as well, if Dr. Miller is right. Right here is something I have tried to get before the beekeeping world for a long time. The older readers of our bee-papers will remember that, thru the columns of the *American Bee Journal* about a score of years ago, Mr. Cheshire, a noted scientist in bee matters in Europe, said that foul brood is not spread thru the honey, as he had been unable to find the bacilli of foul brood in the honey of badly diseased colonies, but that such bacilli are plentiful in the bodies of the workers, and to quite an extent in the queen. This was so contrary to the teachings of our beloved Moses Quinby, and to my experience also in curing my own apiary of foul brood in the '70s, that I wrote an article for the *American Bee Journal* to prove Cheshire wrong.

Later on, our beekeepers in the eastern part of this state were reporting a bee disease around Albany that they called "black brood," and those ordering queens from these parts would have nothing to do with us unless we could prove that such disease could not be found in our apiaries. I was entirely ignorant in regard to this disease until the A. I. Root Co. had their great field meeting at Jenkintown. Then I learn-

ed that black brood, now called European foul brood, was Mr. Cheshire's foul brood. Had Mr. Cheshire lived I would have gladly made him an apology for writing as I did in the *American Bee Journal*, as his foul brood was not the kind Quinby and we Americans had known. And now, after many years of experimenting, I am just as sure that Cheshire was right regarding European foul brood as I have always been that Mr. Quinby was right in saying that American foul brood was spread thru the honey. Therefore it has seemed little less than wicked to insist that the correct treatment for European foul brood is the Quinby-McEvoy plan of shaking the bees and confining them three days, then hiving them on frames of comb foundation, thus bringing a "mountain" of wasted labor on thousands of apiarists. Scores of colonies having European foul brood (some so bad that half or more of the larvæ were dead) getting entirely well without any effort being put forth toward curing them confirmed my belief that the disease is *not in the honey*.

To be absolutely sure, I conducted one more experiment. Two years ago last spring I got some bees ready for shipment that were being sold to settle up an estate, and in fixing them I found one colony that had a large amount of honey left over in a twelve-frame hive with six combs of brood, two-thirds of which was dead and more or less rotten from European foul brood. We nevertheless had none of this disease in our apiaries. I brought home the six combs of honey from this colony and put them in a hive with four empty combs from our store-room. Then I shook a fairly good colony on them. This was about May 20—a time when the European disease takes hold the most rapidly. There was no sign of the disease that season nor since.

Now, Mr. Hershiser, please do not insist that this disease is disseminated thru bees having occasional access to honey shipped to city markets; particles sticking to containers; garbage-cans or pieces thrown out of car-windows, and diseased honey used for queen-mailing cages. This is all right for *American* foul brood, but cannot apply to the European.

Now about the epidemic matter: The fact that this disease first obtained a foothold in this locality about twelve years ago, no one knowing whence it came, attained its height about five years later, grew less during the next three or four years, and then disappeared, makes this seem reasonable.

GENERAL CORRESPONDENCE

CELLAR VERSUS WINTER CASES

Packing in Long Rows vs. Packing Four in a Winter Case

BY JOSEPH J. ANDERSON

Looking over the editor's comments on my article in the Dec. 15th issue I am led to make a few further observations.

As to cellaring, the Root cellars, as I remember them, are merely rooms partitioned off in the very large basements of their manufacturing plant and warehouse. The one in the manufacturing plant I remember as having a window above ground, heavily curtained to keep out the light. These rooms would be materially affected by the temperature and other conditions prevailing in the very large basements of which they are only part, particularly as these basements are only partially under ground. It seems to me the conditions would be considerably different from those prevailing in the cellar of the average beekeeper, even if large enough to hold several hundred colonies.

My cellar is 16 x 18. It is a log structure set in an excavation in the hillside, with a vestibule or entrance in front, and entirely covered over with dirt. It is provided, of course, with ventilators. The earth floor is sandy. In the winter of 1913 I wintered only 64 colonies in this repository, with bottoms and covers on, and they did not winter nearly as well as those with bottoms removed last winter, when I had 158 colonies in the cellar. It is my opinion that in this cellar better wintering will result by removing bottoms, whether the number of colonies be 15 or 150.

The editor's deductions as to heeling in agree with my own—at any rate, as before indicated, I feel that my experience with that method of wintering has been quite sufficient. The colonies in long rows, straw-packed, wintered nearly as well as did those in winter cases. An objection is mentioned, that bees in long rows drift. This is true, and the objection is not an unimportant one either. It is my experience that, with colonies packed in long rows, drifting will invariably occur.

Another rather serious objection is the danger of fire. A blaze kindled in the straw, either by accident or malice, would spread with almost lightning rapidity, leaving no hope of saving any of the bees in the row. At least two members of our association have had this experience.

The big quadruple winter cases make good fire insurance. Even should one of these take fire, which is very unlikely, there would be very little danger of the conflagration spreading to others.

On page 96, Feb. 15, our good friend Wesley Foster says: "One thing that would be interesting to know is what the loss would have been had Mr. Anderson wintered one hundred of his colonies on their summer stands with no protection."

Now, that is a point on which I have no ambition to shed any light by my own experimenting.

Sometimes bees come thru well in this section without protection—that is, with light losses. Other seasons results are disastrous.

A neighbor of mine went into winter in 1914 with over 130 colonies unprotected. When I inspected his bees last spring he had less than 80, many of them very weak, and quite a number died after I saw them. Some three or four years ago another neighbor lost 22 out of 30, and still another, two years ago, had about 25 left out of 70.

No first-hand experience along this line for me. I'm quite willing to profit by the other fellow's experience, Brother Wesley.

But, say, didn't the printer slip a cog? Your article makes it appear that with young and vigorous queens, plenty of bees, and ample stores not to exceed a five-per-cent loss will result in Colorado without winter protection. Possibly this might be true for the southeastern section. What effect would protection have on the 3 to 15 per cent winter loss in the south?

Yes, Idaho, as a whole has a damper climate than either Utah or Colorado. Arizona and Nevada may be omitted in the comparison, because they are exceptionally dry states. But there is a vast difference between different sections of Idaho. This particular section, the upper part of the Upper Snake River Valley, is blessed with more precipitation than any other section of the state except the Panhandle.

The bees packed in straw with open fronts should winter well, other conditions being favorable, provided they are not taken out of packing too early. I am wondering in what section these 900 colonies are located.

Let us hear later from Mr. Foster the results of wintering the 800 colonies in Colorado without protection.

CONCEALING PRESENCE OF DISEASE UNWISE.

Mr. Root remarks that I make no concealment of my experience with American foul brood. Is it not a mistaken policy for any beekeeper to attempt to conceal the presence of foul brood among his bees? Is it not better that the fact be known if any contagion exists, so that it may be combated, and others protected from its spread? Can any good purpose be served by a policy of concealment?

The editor is of the opinion that it would be perfectly safe to use those frames again, as they had been boiled pretty thoroly, then exposed for months to snow, frost, rain, sun, and wind. What say the contributors to GLEANINGS on this point? Can any one give us the result of experience?

THAT OUTDOOR CAPPING MELTER.

Regarding the wax-melter, it is 30 inches wide, 10 inches deep, 7 feet long, made of galvanized iron. It is raised up about two feet from the ground, something after the fashion of a molasses-boiler, with an opening and a free space at the front end. A budge of the same material as the vat, about four inches from the bottom, extends from about twenty inches from the front end to the same distance from the back end. Under this budge the frames are pushed. There is room between the budge and the bottom of the vat for three frames

laid flat, one on top of the other, and the vat is wide enough for three frames side by side so that nine frames may be pushed in at a time. The next set of frames pushes these on toward the opening at the other end of the budge. This budge serves to keep the frames under the water until all the wax is melted out, then they are taken out at the other end and a little tap on a board crosswise of the vat causes all adhering wax to leave the frames. This is the best apparatus I have seen for melting combs in a large way. Of course, where one is equipped for using steam the furnace would be unnecessary.

Yes, I did have a pretty big dose of foul brood, ignorantly, from the other fellow. As stated in my article of July 15, p. 586, I shook every colony, healthy and unhealthy alike, in three yards. More than 4000 frames were run thru the melter. From this process I obtained about 1500 pounds of nice wax, and I averaged better than 150 lbs. of honey per colony of those shaken.

I am preparing for the readers of GLEANINGS a further discussion of my last season's experience with foul brood, and I sincerely hope that next season the sequel will show that the drastic treatment administered has pretty effectively cleaned things up.

Salem, Idaho.

[In the matter of cellar wintering one must be governed by the conditions in the cellar itself. Mr. Anderson is doubtless right for his conditions.—ED.]

SPRING—WITH THE FOUR-COLONY CASE

BY A. J. KNOX

In the November 1st issue, page 905, I gave my general way of handling the four-colony case in preparing for winter. In trying to point out some of the snags I had struck as regards packing, entrances, snow, etc., I ran foul of the editor, who backed up H. I. Bernation in stating (Dec. 1, page 964) that the four-colony case as it is generally used, with from four to six inches of packing on the sides, and ten over the top, is probably no better than a single-wall hive in a forty-mile gale in the absence of snow packing.

Now, if we could be assured of plenty of light snow, to come early and cover the hives to a depth of several feet, and stay that way, we should have little need of packing of any kind, so far as the actual winter is concerned. But on the approach of spring, then the shoe pinches. During

the fall and early winter months the bees seem to be less susceptible to outside influences than later in the season. Warm sunshiny days do not always coax them outside. There has been considerable mild weather this fall, but scarcely a bee has been out. After midwinter, and along toward March, conditions inside seem to change, and a restlessness exists that is absent in the fall. From this time on, depth of snow around the cases, upward ventilation, depth of packing, and sheltered location, all have their effects in stirring up the colony, or in keeping it quiet, as the case may be.

Single colonies with a few inches of packing, and four colonies packed together, are entirely different propositions in the spring. Colonies isolated from each other do not develop heat enough to cause undue excitement, even when the sun shines on them.



A. J. Knox's experimental apiary at Orono, where the swarming took place. Double-walled hives in the foreground.

The four surfaces exposed to the air seem to keep down the heat.

In the four-colony case, even with planer-shavings as packing, the sun's rays on the outside, combined with the heat of four colonies within, raise the temperature to such a degree that the bees spread out over the frames too far in advance of the season. It is at this stage, when clear entrances, little snow, and not too much packing around the sides, combine to keep the temperature inside below the danger-point. It might surprise those who have not tried it, to feel the warmth in the packing of a case that is painted dark or red, and exposed to the sun, even when the weather is quite cold. The packing seems to absorb considerable heat, and retain it after the sun has disappeared. It may be that the danger of overheating, and its consequent influence on swarming, lies in the above condition.

When fall clusters are small, and spring protection is needed for the rapid breeding-up of weak colonies, I have been in the habit, in some instances, of leaving the unpacking of these cases as late as June 7. Usually the plan has worked well, but on one occasion it spelled disaster so far as profits went.

At Orono I have an experimental outfit as follows: 25 ten-frame Langstroth two-story double-walled hives, with from two to six inches of sawdust packing. In winter these all have sawdust cushions about four inches deep. In this yard there are also about 15 four-colony Bartlet or Holter-

mann cases, with from four to six inches of packing on the sides, three on the fronts, and ten over top. All are ten-frame Langstroth except twenty colonies, which are the twelve-frame size. So far I have not been able to detect any difference in the winter mortality, all averaging up about the same.

Last summer I had a most peculiar experience with swarming. In the fall before (1914), clusters were very small, owing to the honey failure, and the colonies went into winter quarters weak in bees. The Orono yard has been requeened with young queens, mostly Italian; and altho they did not build up (owing to the failure of both flows) they should have been in better condition to winter than the rest. In the other yard there had been no swarming, and no requeening. The bees were all left in the cases until June 1.

On May 26 the Orono outfit started to swarm, and kept it up without intermission until Sept. 24, the bees in the cases giving nearly thirty swarms while the twenty-five single hives cast four or five. The strange thing was that the bees were not strong enough to swarm; and from first to last the swarms were small and mostly useless. There was no clustering out at the entrance, no crowding in the hives, scarcely any honey-flow, and practically no swarming at the other yards with the old queens.

What was the cause? So far as I can see it was simply an overdose of heat in the four-colony cases, due to the combined effects of sunshine on the outside and the

heat of four colonies within, packed on the quad system. They had just three inches of packing on the fronts, and entrances half size. The weather was generally cold and bright. The bees did not fly freely, as they were weak, and needed the heat to facilitate breeding. The plan had worked well other years. The material used for packing was planer shavings. There was just one thickness of burlap between the bees and the shavings. There was no snow around the cases, and no bottom packing, and the cases stood on 3x5 scantling, with entrances at least ten inches from the ground.

With the packing that I now use, I shall be obliged to choose between the risk of unpacking too early and the evils following, and leaving them too long with another set of evils just as bad or worse.

The queens were bought from some of the best breeders in the South, and not all from one man. They were all introduced by the Miller smoke method. In the same yard were a few blacks, and also a few Carniolans, and the swarming was equally bad all round (except in the single hives).

The other yards with the old queens, and under the same treatment, were quiet, as

there were only about half a dozen swarms in each yard. They contained 70 colonies each, all packed on the four-colony plan, in the same manner, with the same depth of packing.

The present winter I have four yards packed in the same way; but as the bees went into winter quarters strong I will see that they are unpacked early, and take no chances on a repetition of last season's performance at Orono.

To those who are advocating greater depth of packing than that used at present I would call attention to the fact that the case is now about four feet square, which size is just about the limit for one man to handle with ease, even when made out of light material. Clapboard siding costs here \$25 per 1000 feet, and inch stuff \$40. I have both, and up to now see no advantage in the heavier stuff, but, on the contrary, a number of disadvantages. All that is needed is something to hold the packing, keep it dry, and last a generation or two; and I think we have it in the siding. A commercial beekeeper must consider expense of material and labor as well as some other things.

Orono, Ont., Can.

A MALIHINI IN THE HAWAIIAN ISLANDS

BY LESLIE BURR

Just when and by whom bees were first brought to the Hawaiian Islands I have as yet been unable to ascertain. It is reasonable to suppose, however, that the first bees were brought by some of the numerous missionaries that came to the islands following their discovery by Captain Cook. Most of the plants and animals common on the mainland, but unknown here, were first brought by the missionaries.

In ascertaining who was the first person to practice apiculture on the island of Oahu, at least, I have been more successful, for that particular person is still very much in evidence. That he was the first real beekeeper is not necessary to prove, as he admits it. I refer to Thomas Rewcastle, who resides on Kinau Street, Hon-

olulu. I discovered Mr. Rewcastle in much the same way that I discovered my Japanese friend L. Tamagawa, out on Diamond Head. It happened this way: Honolulu is a city containing many streets that have varied and picturesque names (perhaps atrocious would be the better word), such



Kinau Street, on which Thomas Rewcastle lives.

names as Nuuanu, Ponoehau, Kahauki, Kaimiku, Kahauiki, etc., being just ordinary appellations. On the particular day in question I was wandering about the city with the sole purpose in mind of seeing just how weird a name I could find that had been tacked on a street. As I was going down Kinau Street, noting the varied vegetation that almost hid the houses from view, and wondering if the particular block I was on would ever end, I discovered an apiary of some fifty colonies or so. The hives were

huddled together in an algaroba thicket some fifty feet or so from the street. On my discovery of the apiary I considered that Kinau Street was a good place to stop, so I quit my quest of strange names. I had found the home of Thomas Rewcastle, an Englishman by birth and an American citizen by virtue of circumstances. "Lassoed Americans" is the term that the natives of the islands apply to themselves, and it is not a bad term when one considers the manner and circumstances by which the people living in the Hawaiian Islands became American citizens.

Mr. Rewcastle was a mechanic, and came to the islands in 1879. In 1883 he had a desire to own some bees, and purchased two colonies that he discovered. Later on in the same year he caught a stray swarm. By reason of his lack of knowledge of bees he lost the two colonies he had purchased the same year. He tried to buy other bees to replace them, but was unable to do so. As a result he was feeling rather blue. It was when he was in this state of mind that he saw an advertisement by A. I. Root in a newspaper. This advertisement had the same attraction for Mr. Rewcastle that a crippled minnow has to a black bass. Previous to the finding of this advertisement by A. I. Root Mr. Rewcastle had made a lot of inquiries of people in Honolulu for information pertaining to bees, but had been unable to find any person who was better informed than himself.

From the time he got in touch with A. I. Root his progress was rapid, and within a few years he built up from his one stray



Apiary of Thomas Rewcastle, situated in the heart of Honolulu.

swarm to over 500 colonies. During those early years he secured good crops of honey, at times averaging as high as 350 pounds of honey per colony. The surplus flow, then as now, was from algaroba. All his bees were located in the city of Honolulu, and I have an idea that he may hold the record as having been the largest city beekeeper. In 1895 he had three apiaries. At his residence on Kinau Street he had 250 colonies. At the base of Punchbowl, a dead crater some 500 feet high that is in the center of the city, he had 50 colonies. In the southern part of the city, about $1\frac{1}{2}$ miles from his residence, he had 50 more colonies located; and out near Waikiki Beach he had another apiary of 200 colonies. His honey and wax he shipped to England, and there received a good price for them. One thing that he never had to contend with was bee disease, with the exception of paralysis. He stated that in the year 1888, and that year only, his bees were attacked with paralysis and he lost 50 colonies.

Mr. Rewcastle is now seventy-four years of age. Thirty-seven of those years have been spent in Honolulu. At the present time he has disposed of all his bees except his apiary at his residence on Kinau Street, and he is ready to dispose of most of those.

He stated that in years past he had sold bees to many people, and had done what he could to make practical apiarists out of such people; but they all failed with but one exception, that exception being the Gilbert Brothers.

For some years past Mr. Rewcastle has been interested in chickens and pigeons,

his principal income at the present time being from squabs.

In spite of his seventy-four years Mr. Rewcastle is very active, as is his able wife. They live a simple, comfortable life, and, even tho life's shadow has fallen far toward the east, they are too busy to think about having physical ills, and both are enjoying

the best of health. In my opinion they both have many years before them.

Such is a brief picture of the life of Thomas Rewcastle as a beekeeper, the father of practical beekeeping in the Hawaiian Islands—an able beekeeper, a fine example of manhood, and an ideal citizen.

Honolulu, Hawaiian Islands.

TENNESSEE STATE CONVENTION REPORT

BY J. M. BUCHANAN

A notable series of meetings was held in Nashville during the last week in January, when the Allied State Associations of Florists, Fruit-growers, Nurserymen, and Beekeepers held their annual conventions, that of the beekeepers taking place on Jan. 27.

For several years these associations have co-operated along various lines, such as advertising, getting out joint programs, convention reports, etc. An important feature planned for next fall is a combined fruit, flower, and honey show, to be held in Nashville. It is proposed to raise about \$5000 for expenses, premiums, etc. It is expected that this show will be of immense value in advertising our products.

A good attendance was present at the beekeepers' meeting, and much interest was manifested in the papers and discussions. Prof. Francis Turner told of his success in teaching beekeeping in the public schools. Prof. G. M. Bentley gave an outline of the proposed four years' course in bee culture in the Agricultural College of the University of Tennessee. Dr. J. S. Ward read a paper entitled "The Sting of the Bee," and also gave a report of his work as apiary inspector. He said the foul-brood situation in the state is much improved.

An important paper on wintering was read by Ben G. Davis, in which he showed that in this climate it does not pay to go to the expense of providing packing or extra protection for bees in winter, a good hive and plenty of good stores being all that is necessary for wintering. Much stress was placed on the necessity of having the colony strong in young bees at the beginning of winter. Several members reported good success with the plan of wintering in double-story hives. The bees so wintered seem to come thru in better condition, and build up faster in the spring.

Mrs. Allen read an interesting paper, and recited a poem, "We Beefolks," which was greatly enjoyed by those present.

The election of officers for the ensuing year resulted as follows: Ben G. Davis,

president; Prof. F. M. Turner, vice-president; J. M. Buchanan, secretary.

The accompanying photograph shows some of the beekeepers who were in attendance.

Franklin, Tenn.

[Mrs. Allen has supplemented the above report as follows:—ED.]

Knowing as I do that the secretary of our state association planned to send a report of our annual convention (with our picture!) I scarcely know whether the ethics in the case will allow me also to comment on it or not. But I do think the traditions hold secretaries so severely to prosy minutes that they are almost forced to get the fact rather than the flavor; and while ours was a modest gathering it did have some flavor. Mr. Romine, the president, made a splendid presiding officer. There was Prof. Bentley, the state entomologist, over from Knoxville, proclaiming the dignity and worthiness of beekeeping as a university course, and giving us a vision of what may some time come to be, in the matter of education, both practical and scientific. There was Dr. Ward, the state inspector, always enthusiastic and full of his subject, talking about the marvelous delicacy and wonder of the formation of the bee's sting, as well as about modern methods of practical beekeeping. And there were all the others (this is not a report, you see) with their different messages and comments and suggestions. But, best of all, was the very noticeable feeling of increasing friendliness, unity of interest and purpose, and the recognition on all sides of the open-minded attitude of people eager to improve and develop, and to keep always abreast of new ideas in their chosen work.

One impressively interesting thing was the unanimity of opinion expressed that this section does not require the heavy packing recommended by Dr. Phillips—that it would not bring about sufficient additional profit to pay for the increased labor and



Beekeepers present at the Tennessee convention at Nashville, Jan. 27.

expense. Mr. Ben G. Davis, who handled this question in an interesting paper, said in answer to a question that some time ago they made experiments along this line that convinced them that the good to be gained by quadruple winter cases was not worth while for them. And no one was found to take up cudgels in behalf of the recommended method.

WE BEE-FOLK

(Being the conclusion of my paper at the convention.)

The city's mad mornings are discord and din,
With a clash and a roar and a jangle within;
While with mockingbird music the morning
hours come

Caressing our beehives—and how the bees
hum!

The cities go tramping with quick-rushing
feet

That hurry the day thru, and restlessly beat;
But we love to loiter a bit as we pass

A lingering day by the hives in the grass,
In a spell that is woven by shuttle-like wings
That flash thru the sunshiny fabric of things,
While whispers of grasses and winds in the
trees

Come waving around us at work with our
bees.

The drab-tinted cities are murky and gray,
While the greens of the country are running
away

To far hazy blues, and everywhere glows

The purple of iris and red of the rose.
And out from the flowers with indolent air
A fragrance comes floating around every-
where—

Lilac or lilies or locust in bloom,
More delicate far than imported perfume;
And we shrink to remember the dust of the
town,

With stifle of crowds and smoke like a
frown.

And we draw a deep breath where the blos-
soming trees

Are showering petals on us and our bees.

Oh! this work of our hand and our heart and
our brain,

And the deep satisfactions our workings
attain—

The long winter evenings to sit by the fire
And delve into books that instruct and in-
spire;

The fitting of hives from the bottom to top
In the litter we love in some improvised
shop;

The honey that hangs in the hive's heart at
dusk,

Like sunshine entangled in odors of musk;
The mornings and noontimes, when all the

world sings,
And our bees flash around us with rapturous
wings,

And old benedictions descend thru the trees
To touch us and bless us at work with our
bees.

Nashville, Tenn.

SHIPPING COMB HONEY BY PARCEL POST

BY J. L. BYER

A few days ago the rural mail-delivery man placed a peculiar-looking parcel in our mail-box. It was three or four inches thick, about double that size in width and length, and the outside of the parcel was of heavy brown paper tied securely but rather loosely with heavy cord—ordinary binding twine if I remember correctly. A glance at the postmark showed me the words "Norwich-town, Ct.," and the very first thought that went thru my mind was, "Well, I am glad that I did not question but that Allan Latham could send comb honey by parcel post successfully." Sure enough, after a whole lot of unwrapping was done, we found a beautiful section of sumac honey—one of the 36 sections illustrated in a recent issue of GLEANINGS. First I shall deal with the quality of this particular section of sumac honey. Some years ago while at the Albany convention friend Latham kindly gave me a section of sumac honey which I brought home with me. For some

reason nearly all the members of the family except the *pater* did not like it any too well, objecting to the rather peculiar flavor common to all who are familiar with sumac honey. In the case of this section just received by parcel post, whether it was because of the novel way it reached us or some other reason unknown to me, every one of the family pronounced the honey very fine indeed. As to the condition of the honey in so far as the long trip thru the mails was concerned, briefly I might say it was just as perfect in every way as any section of choice honey could well be. In acknowledging receipt of honey I told Mr. Latham that in my opinion it would have gone to the front at Flanders without injury, and, judging by the resiliency of the package coupled with the substantial nature of the packing as well, I believed a shell from a "75" would have done it little harm. When I describe the method of packing used I think all will agree with

friend Latham that comb honey can be sent successfully by mail. Whether it can be done in a commercially successful way is another question.

First of all, the section—one of the four-beeway variety used by friend Latham—was carefully wrapped in a good grade of paraffined paper. This was then placed in a comb-honey carton, the same having a lot of attractive advertising printed on it. Then on each side of the carton there was placed blocks of a scant half-inch in thickness and of the exact size of the carton. This was carefully wrapped with three thicknesses of rather light-grade brown paper, and then around this was placed excelsior averaging probably two inches thick when not compressed. Outside of this again was the last wrapping, consisting of two or three thicknesses of heavy wrapping paper, all securely tied with heavy cord. This rather lengthy description of the package may make it appear to be a difficult job thus to prepare a section, but I can believe Mr. Latham, that, after wrapping a few, the job would be an easy one. As to cost of sending honey this way, of course that is the great problem standing between the producer and the buyer of honey by mail. I regret that I forgot to weigh the package, but Mr. Latham tells me that 7 cts. postage will carry it inside first two zones, so any one interested can readily tell what the weight would be approximately by referring to the schedule of rates. In sending it to my address, thirty-six cents in stamps were affixed. Package did not go to custom-office, so possibly that was partly duty charges. At any rate, that was the most expensive section of honey that our family ever ate, altho it really cost us nothing, and I am still wondering how to get even with friend Latham. As before mentioned, the section was perfect in every way, and if he can produce honey like that without using separators, then I do not blame him in the least for not using them at all. The four-beeway section at first

glance does not appeal to me, but then I am not a comb-honey producer; so comments in that line from me are of no value. Even if Allan Latham can produce section honey without separators like the sample sent me, do not forget that all comb-honey men are not "Allan Lathams. That factor will, in my mind, pretty well dissipate all ideas of having the bulk of our comb-honey men produce unseparated honey. The same argument holds good in the matter of sending comb honey by mail. Friend L. says he never expects to send out honey that way to any great extent, but often parties wish him to send some friend a section, and for that purpose it is rather nice to be able to send honey by mail successfully. But many might try to send honey by mail and not take the elaborate care to prevent accident that he does, and then there would be trouble.

Markham, Ont.

[In the course of a year we receive a good many glass photographic negatives by mail. Probably three out of four are broken when they reach us. A pane of glass eight by ten inches, or even one only five by seven inches, is easily broken. About the only safe way to send such a negative is to wrap it in several thicknesses of soft paper, and then in heavier paper, finally placing the package inside a strong flat box.

What is true of pieces of glass is true also of comb honey. An egg is hardly as fragile as a piece of comb honey, and yet quite a number of beekeepers, desiring to experiment, have merely wrapped the honey, and then enclosed it in a pasteboard box. Such a package is not fit for the mails.

Mr. Latham's plan is safe, but the expense will probably be in the way of shipping comb honey by parcel post in a commercial way. If the cost of the packing material and labor amounts to three cents it would cost ten cents, therefore, to mail a section to the second zone.—Ed.]

BEES DRIFTING; CAUSE AND PREVENTION

BY G. C. GREINER

Since the subject of bees drifting has been occasionally mentioned by some of our most prominent beekeepers I have at different times tried to make such observation as would explain its prevailing conditions. Many times have I watched the flight and general behavior of the bees, sometimes standing in front of the yard or at other

times lying on the lawn in front of certain hives.

It seems that there are two main causes that produce this undesirable feature: First, abnormal excitement; second, location of home insufficiently marked. But as the first is really the cause of the second, there is only one cause, the second, the actual

cause of drifting. As a rule, the most detrimental drifting takes place when bees are moved from the cellar to their summer stands, and it does not make much difference if any whether they are placed on the same stands they occupied before they were moved into the cellar or not. The usual way of moving bees from the cellar to their stands outdoors is the most enticing inducement to cause drifting. After a long confinement of four, five, or even more months, which has been forced upon them against their wishes they long for the time to have an open-air fly they so much need for their future welfare.

To prevent bees leaving their hives, the moving is done some cool night; and it is done when there is a fairly certain prospect of a fair day following, that bees may not venture out on an inclement day and be lost. Next morning, as soon as the climatic conditions will permit a bee to fly, a few of those suffering most begin the rush for this long-wished-for cleansing flight, and, without paying much attention to the exact location of their home, the whole swarm is in the air in a very short time. But it does not end here. The roar and commotion of the first few colonies soon attract the attention of the others. They, too, in the excitement of the occasion, leave their hives without taking the precaution of marking their location; and before many minutes the whole apiary is in the air, a confused mixed-up multitude that knows not where to go or whence they came. When they finally quiet down and begin to look for their home they are a lost and unguided set. There happens then what the editor describes on page 922, with the closing sentence: "The result is, the stronger grow stronger at the expense of the weaker."

We may take it then for granted that drifting is the result of the undue excitement, when bees take their cleansing flight at the same time, especially when hived close to one another. To prevent it would be a simple affair. By setting out one colony at a time and waiting until it had its first cleansing flight, a second one might be set out; and after this has had its first flight a third one could follow, and so on until the cellar is emptied. I hardly think drifting would occur if managed in this way. But this would not be practical. It would take all summer to empty a cellar of a few hundred colonies. When the time comes that bees need this much-desired flight, and atmospheric conditions favor the change, they must all, or nearly all, go into the open air—the sooner the better.

Now, suppose we compromise, and try to

produce conditions more like the flight of bees wintered outdoors. If a part, say one-half or one-third of a cellar's colonies were moved outdoors at a time, scattered over a beeyard, and placed at reasonable distances from one another until they have their first flight—then at the next opportunity another portion moved out and distributed between the first lot until they have their flight, and the same operation repeated with the remainder, I believe, altho I cannot speak from experience, the unpleasantness of drifting would be reduced to a minimum. In a way this would resemble the condition of bees wintered on the summer stand. It hardly ever happens that adjoining neighbors are out at the same time. Even after a longer confinement we generally see one flying here, another a little further down the line, a third one still further, and so on; and when these are quieting down, the intermediates follow suit. Being at some distances from one another, and thoroly knowing their location, little drifting occurs.

If it is not caused by the beekeeper himself bees will drift very little when wintered in long straight rows or quadruple sheds outdoors. The main point to be observed is, bees must be thoroly acquainted with the location of their own hives. To insure this it is necessary that bees should fly a couple of weeks (the longer the better) from the location they are to occupy after they are placed and packed in their sheds. If moved any distance at all, even if only a few feet from their accustomed place to the sheds when being packed, drifting is sure to result. It requires quite a little strategy and systematic manipulation to wean a colony of bees from one place and teach them to find another with unfailing certainty unless they are moved miles away.

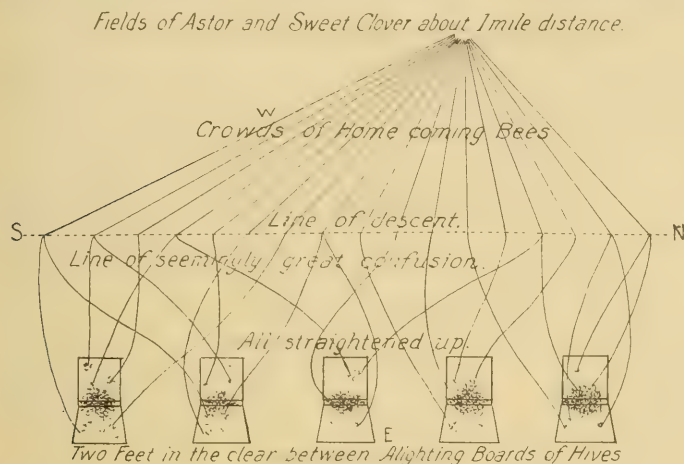
To illustrate the certainty with which bees know and find their home by location I present to the readers the accompanying drawing made to represent one of those roaring bee days in September when it seems as tho bees are bringing honey, honeypants, soil, and all. If an instantaneous photo could be taken the drawing would not resemble it very much; but it demonstrates fairly well the point I wish to make. The roar and multitude of flying bees resembles an absconding swarm coming toward you, with the exception that they are flying in a straight line while an absconding swarm moves more like a rolling ball.

The hives face the east, and the direction from which bees are supposed to be bringing honey is northwest. When coming home they have to pass over pear and apple

orchards, so that, when reaching their hives, they are from ten to fifteen feet in the air. When the line of descent is reached they suddenly drop, not straight down, but in every imaginable direction to bring them nearest to their respective homes. Altho the excitement at the hive-entrances is at its highest pitch, no confusion can be noticed. Occasionally a heavily pollen-laden

not so liable to drift is because they generally have an occasional flight during the winter; and when spring comes they are not so hard pressed for exercise. They leave their hives in a more nearly normal condition, and consequently return in the same way.

One more point I wish to mention. The drawing proves my claim which I have always defended, that bees are guided more by location than by looks or appearances. No matter how conspicuous a hive may be made by color, shape, or size to the human eye, it has little to do with bees entering their own hive. The drawing represents only five hives in a row, while in reality there are from twenty to twenty-five, all as uniform in appearance as a basketful of eggs laid by one hen. But along the whole



bee enters a hive somewhat hesitatingly, reappears after a second or two, takes wing, and enters the next hive and remains.

The action of the bees in this case may differ somewhat from their compelled flight after a long confinement; but even then perfect knowledge of location has a tendency to prevent confusion and drifting. Another reason why outdoor-wintered bees are

line the home-coming crowds are evenly spread from side to side, and every bee seems to know exactly what direction to take when aiming for its hive at the line of descent. A row of equally uniform-appearing hives a mile long would not cause any more confusion than the five represented in the drawing.

La Salle, N. Y.

BEE CULTURE IN LOUISIANA; MAKING INCREASE

BY J. F. ARCHDEKIN

There are only two crops of honey gathered here that are worth working for; namely, the spring and fall crops. The summer flow, as I have shown in a previous paper, is dark and bad-flavored, and, consequently, of little market value. But for raising bees it is, of course, as good as any honey, and the purpose of this article is to show how it can be utilized.

The bees are more valuable in many ways than the honey, and can be more readily disposed of. The pound-package trade is growing rapidly, and I look for it to surpass even the fondest expectations of the southern beemen before many years. There is absolutely no foul brood here, and this gives us an advantage that is not to be smiled at.

During the spring flow it is, of course, desirable to hold all the colonies together as much as possible; but at its close the hives are full of bees and brood. Unless some practical use is made of this material it will go to waste to a great extent. Unlike the central states where I was raised, there is a long slow flow ahead, lasting for months. Under these circumstances the most profitable thing to do is to divide. Three frames of brood with the adhering bees can be lifted out of each brood-chamber and put in a hive on a new stand. A cell is given, and they will draw the remainder of the combs needed to fill the hive and store a super of honey in the fall flow. Occasionally it may be necessary to give a few of them that have had bad luck a frame

or two of brood or honey during the summer; but for the most part they will need no further attention.

By the last of July the old colonies will have lots of honey stored in the extracting stories. Instead of taking this honey, the upper stories with what bees they contain can be set on a new stand, together with a couple of frames of brood and a cell. Having their combs already drawn, and plenty of stores, they build up rapidly and are in good condition to take advantage of the fall flow.

I have demonstrated the above methods to my entire satisfaction, and proved that it is easy to treble the number of colonies spring count, and secure two crops of honey at the same time. All this makes the queens hustle, and wears them out very quickly. I believe it is good practice to requeen every year to secure the best results "in this locality." Besides, a young queen will lay all winter, and in the spring jump in and fill the hive in no time.

Bordlonville, La.

WHERE THE BEES KEEP THE HOME

BY HENRY HOGRAVE

During the years that I have been a reader of *GLEANINGS* I have read more than one story in which it was stated that bees paid for this or for that; but in this little narrative of mine I want to describe how they managed to keep that which I had already secured.

From my earliest childhood days it had always been my ardent wish to live in the country, even trying to persuade my parents when a mere boy to move away from the city. So, after having been engaged in the retail dairy business for a dozen years or more, and after having taken a better half unto myself, I thought the opportune time had arrived in which to materialize one of my most cherished hopes.

Accordingly, in the fall of 1909 I purchased for cash a ten-acre tract with good buildings, located about twelve miles from the metropolis of the state. My city friends all predicted my early return to the city, and for the first year or two it seemed as tho their prediction would be fulfilled. Luckily, however, and thanks to the busy little bees, I am still on the place, prosperous and contented.

When I moved to the country I did not even think of bees, much less dream of keeping them so that I could keep the place. I had planned to do truck-gardening, as I had often helped my mother in the backlot garden; but, owing to the too great distance from town, it was not a paying prop-



Home of Henry Hogrove, Waukesha, Wis., which the bees "keep."



Part of Mr. Hograve's 115 colonies.

csition. It was not long before I concluded that a change in management must be made if that prediction of my friends were not to come true. It has remained a mystery to me to this day how it came about; but my friends all know that I am keeping bees, and that the bees are keeping me where I so longed to be.

In January, 1911, I bought three colonies from a farmer some miles away; transferred them to ten-frame dovetailed hives; increased to eight colonies; but secured no surplus that year. Since then I have steadily increased them in numbers, and have

getting it, altho some other producers have advertised and offered their product at 10 cts. per lb.

Of course I have not laid away a fortune during this time, but I have made a comfortable living, made several improvements, chief of which, among other things, is the installing of a furnace, and this fall the acquiring of a new automobile.

Waukesha, Wis.



A side line that goes well with beekeeping.

always secured more or less extracted honey per colony, having as many as 115 colonies during the past season, and having had with me a nephew who has now decided to embark in the bee business for himself.

I retail all the honey I produce, in the cities of Milwaukee and Waukesha, at 12 cts. per lb., and have found no trouble in



300 lbs. of extracted honey from one colony.



M. S. Nordan's apiary on the Pike Road, 23 miles southeast of Montgomery, Ala.

BEEKEEPING IN ALABAMA

BY M. S. NORDAN

My home apiary consists of fifty colonies, all in ten-frame hives. All the bees are pure Italians, three-banded.

I started this yard in the spring of 1912. At that time I was in poor health, having gone thru three operations which nearly took my life. When I got to working with the bees I commenced getting better and have been improving ever since. This apiary is only 60 feet from the gravel road, which is the main road leading to Montgomery. Altho the road is used constantly I have yet to hear the first complaint. I did have 100 colonies, but moved half of them to outyards, putting 25 of them three

miles east of this place, and another 25 five miles west.

My son, 14 years old, is my helper, and is a fine beeman. His pet coon is lying on a branch of the tree in the foreground of the picture.

My crop was a little over 300 gallons last season. I am planning to increase the business, and will build up the outyards to 50 colonies each. I started with only 20 colonies. I have never shipped any honey, for I have always had a market at home for all I could produce. I have never sold it for less than \$1.00 a gallon.

Mathews, Ala.

WATERING BEES AUTOMATICALLY

BY A. C. GILBERT

Having kept bees right beside a mill-stream of sparkling spring water until last year I moved to a location where I had to resort to artificial means for supplying water. I planned a labor-saving way which I think cannot be improved on very much.

The first desideratum is a well to furnish the water for a force pump. The pump has an opening at the back, opposite the spout. A pipe with valve is connected thereto. The spout has a valve also. When properly adjusted most of the water will flow thru

the spout-valve, and just the amount needed for the bees can be controlled by the valve at the back of the pump.

I think it a great advantage to have water for bees right near the apiary, for it certainly saves the lives of a great many; for when they are compelled to fly very far, especially on a chilly day more are lost than one is aware of. Furthermore, brood-rearing will go on at a more rapid pace where water is near by.

I have a large trough filled with floats, and it is surprising how fresh and pure the water keeps for a long time without emptying. All there will be is a small accumulation of slime and moss. Perhaps it might be a good plan to clean out the trough occasionally. It is a sight to see the way the bees swarm around the trough, and the stream of bees going back and forth during

dry weather and when brood-rearing is at its height.

I use water from the same pipe to water the poultry by having another valve at the lower end of the pipe. The fowls have had plenty of fresh water constantly all summer. I would not carry water to chickens all summer for the price of two force pumps. Little chicks need fresh water several times a day during the hot summer days. Every time water is used at the pump the bees and fowls get some too. During the summer months some member of the family will be imbibing freely, or there will be a pail or two used otherwise. By closing the valve at the back, the force pump can be used for washing cars; and if near buildings it could be used in case of fire by attaching a hose.

East Avon, N. Y.

EUROPEAN AND AMERICAN FOUL BROOD

Their Differences, History, and Methods of Treatment

BY OREL L. HERSHISER

Continued from page 162, Feb. 15.

In the summer of 1912 I treated for European foul brood over half of the colonies in one of my apiaries by shaking, according to the McEvoy plan, and requeened many of them with the resistant Italian stock described in Feb. 15 issue. In the fall 82 colonies were prepared for winter, 80 of which came thru to the following season in excellent condition. About the middle of May the apiary was moved, and, soon after being established in the new location, 42 of the 80 colonies became reinfected. But, with few exceptions, those requeened with resistant stock the season before were unusually strong, and showed no trace of the disease.

When white clover commenced to yield honey the treatment of the diseased colonies was undertaken. These were shaken or brushed upon starters, and three and four days thereafter placed on full sheets of foundation *a la* McEvoy. The diseased brood was stacked up four and five stories high over healthy Italian colonies, care being taken that the queen was confined to her own brood-chamber by an excluder. A good clover-honey flow was on, and, as anticipated, the diseased combs were thoroughly cleaned out, filled with honey, and no trace of the disease was ever discovered in the brood-chambers of these healthy colonies.

A number of the diseased colonies that had been shaken swarmed out, eventually

reducing the number in the apiary to 72. In all other respects the treatment was successful, which was shown by an increase in the number of colonies from 72 to 105, 101 of which wintered, and a crop of 9500 lbs. of extracted honey, the individual yields running all the way from nothing, in some of the colonies treated, to past the 300-lb. mark in several of the healthy colonies of resistant Italians.

There is surely a bright side to this whole European-foul-brood situation. It is this: When you have Italianized all your colonies with vigorous, resistant stock, the better condition of your apiary and the valuable experience you have gained will add so much to your proficiency and enable you to produce so much better crops of honey that you will not seriously regret that the disease overtook you.

The essentials for the treatment of European foul brood may be summarized as follows:

Head all colonies with resistant Italian queens, or rear them in the process of treating.

Treat only strong colonies; if not strong, unite until those to be treated are strong.

Treat only during a good honey-flow that is sufficient to prevent robbing, except that strong colonies, that are diseased late in summer, may be given the fall treatment, after breeding has stopped for the season,

by placing the colony on combs of honey that are not contaminated with infection.

DZIERZON'S DESCRIPTION OF THE TREATMENT OF THE "MALIGNANT FORM" OF FOUL BROOD (AMERICAN FOUL BROOD).

"With this the question at most is how the owner of the diseased stocks may come off with least loss. First of all, the queen may be made use of, and must be caught as quickly as possible, if the whole stock is not immediately cashiered. But if the bees that have been made queenless should have removed all the foulness up to the time of the hatching and fertilizing of the queen it does not do to rely on having obtained a healthy stock. The disease would soon appear in greater severity than before, because, in the mean time, the poison has probably permeated the accumulated brood food all the more completely. We hasten, therefore, to take out the queen again as soon as she has become fertile, and after some time we put a queen-cell into the stock again, or clear out the hive, using the honey for any purpose other than bee-food, which might be given to brood.

"But if we still cherish the hope of recovering a healthy stock from the bees they must be subjected to a similar but longer treatment than that already described. After they have been kept two or three days shut up in an airy vessel without food, or with food given very sparingly, they are put into a new hive, the queen being kept caged for some time, partly for the sake of preventing the laying of eggs, partly to hinder their going off, to which such a stock is much disposed. But to put in a comb of brood, or even larger combs, is not advisable, because the stock ought to work up all the nutritive material it has by it as much as possible into wax, so as not to deposit it in the cells. Notwithstanding that, the stock may at last be up and away, or show itself again foul-broody so that all the time and care bestowed on its cure is lost. It is better, therefore, to make short work of it, break out the contents of the diseased hives, make the best you can of them, and buy in their place healthy breeding-stocks."

The prime essential in the treatment of the "malignant form" (American foul brood) as described by Dr. Dzierzon is, avowedly, to have all the diseased food the bees may have with them, when deprived of their combs, consumed or made into wax during the time they are caged and before the queen is allowed to deposit eggs. With the aid of comb foundation the same end is accomplished by placing the bees and

queen on very narrow starters of comb foundation for three or four days and then shaking on to full sheets after McEvoy, or by shaking the bees directly on to the full sheets, omitting the first shake, as recommended by other operators, the latter being less exhausting to the colony, but probably not so sure a cure.

The fundamental principle upon which the treatment of European foul brood depends is the suspension of brood-rearing for a time sufficient for the bees to clear the combs of diseased matter, or for conditions to obtain in which the brood will not be fed with contaminated food and bees sufficiently vigorous to do a thoro job of cleaning. That of American foul brood is the destruction or sterilizing of all combs that have ever contained diseased matter, and by forcing the bees to consume, or convert into wax, all honey they may have with them, when deprived of their combs, before breeding is resumed, thus destroying all traces of the disease.

It will be observed that these principles were recognized and described by Dr. Dzierzon, and that modern methods of treatment are but variations and elaborations of those described by him.

Foul brood, like most infectious diseases that attack animal life, loses half its terrors, and more, when effective means of abatement or cure are available. Most states and provinces have enacted good laws, backed by liberal appropriations, to safeguard the interests of apiculture, under which capable bee-inspectors are brought to the very door of the apiarist "without money and without price." Practical educational demonstration in the treatment of these diseases is, therefore, within the reach of all, when the disease is present, wherever such laws are in force.

Besides all this, and what should be more fruitful of encouragement and confidence than all else, many beekeepers, including some of the most extensive honey-producers, have demonstrated in their own apiaries that the foul-brood situation can be mastered; that the good crops of honey that they secured before the disease overtook them are still obtainable, and that expansion of their apicultural business may be undertaken with certainty of success. Why, then, need any beekeeper quail at the approach or appearance of the disease in his apiary?

Kenmore, N. Y.

[This is the last of a series of four articles by Mr. Hershiser on the history and treatment of foul brood.—Ed.]

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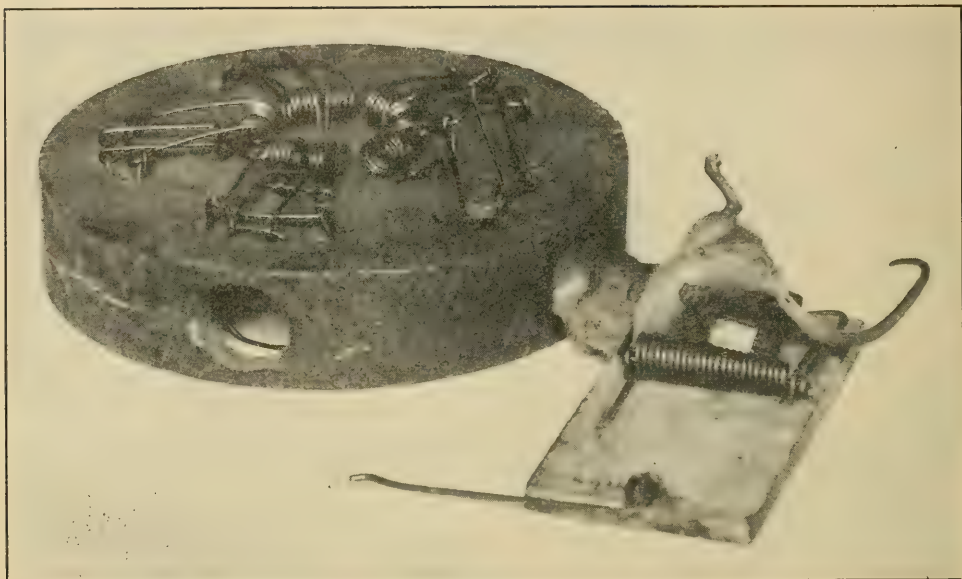


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The way of the transgressor is hard, for troubles rarely come singly.

AS GLIMPSED THRU THE CAMERA

The Best-laid Plans o' Mice and Men Gang Aft A-gley

BY H. H. ROOT

Here is a common picture of an uncommon sight. I tried hard to write an article on the subject; but after saying that mice do much damage to honey, and that every beekeeper ought to set traps, I could not think of anything more, and yet the article did not seem finished. But I have decided to write an article any way, not on any particular theme, and then if I ramble somewhat no one can accuse me of getting off the subject.

The picture itself is suggestive. It reminds one that some mice are like some people in that they get into trouble, no matter which way they turn. It reminds one also of the old saying that So and So jumped from the frying-pan into the fire. In the picture I am not sure which is the frying-pan and which is the fire. I believe, however, that this particular mouse, feeling himself hugged tightly about the neck from above, attempted to move away by using that part of his anatomy not so held, and, unfortunately, stepped on the trigger of the other trap. I *think* this is what happened, for I cannot imagine an intelligent mouse caught in the small trap (especially across the stomach) showing any great amount of interest in the cheese on the trigger of the larger trap, and so I believe

the larger trap should be labeled the frying-pan, and the smaller one the fire.

This picture reminds me of the time I attempted to use a butcher-knife for uncapping. It worked quite well, but on the second comb I cut a large piece of myself from one finger. While observing this unexpected result, I decided to move away from there, and then discovered that I was standing in honey. The pail under an eight-frame extractor had overflowed; and, altho the time had been short, there was a thick layer of honey gradually spreading itself over the floor and finding its way thru the cracks to the ground beneath, where the bees outside could get it. This was during a honey dearth. If we had had a better floor in that honey-house the bees would not have got to robbing, or, better still, if I had not cut my finger I probably should not have let the extractor-gate remain open so long. If this mouse had not been too nervous to think, he would have reflected that if he had not got his chin caught in the large trap he could easily have avoided the other one. Troubles rarely come singly.

Job had several troubles all at once. Mr. Holtermann has only one among his bees—European foul brood, and for this reason it seems to me that he should not have likened

himself to Job, even tho he does have friends who try to comfort him. If Mr. Holtermann, in casting about to find a reliable cure, had discovered that two-thirds of his bees were afflicted also with American foul brood, I can see that he might have felt like Job and—like this mouse. Getting caught once is not such a terrible thing; but getting into another trap at the same time, and a worse trap too, is a somewhat serious matter.

While viewing the remains of this mouse I happened to remember H. F. Strang's exciting experience in moving a car of bees, as told in the June 1st issue of *GLEANINGS* for 1914. After all sorts of unexpected delays, requiring 52 hours to make a trip of 42 miles, he finally reached Chicago

with his car of bees where he was told that his choice Jersey cow which he had in the car would have to be inspected. This kept him in Chicago over two whole days with his bees shut in the car; and when he finally got started again the train ran into a severe blizzard, got stuck in the snow, and the engine ran off the track. I don't remember what else happened, but that was surely enough to make Mr. Strang and everybody else suspect that, when moving bees, the unexpected may happen.

I believe the sad fate of this mouse has reminded me of enough predicaments for the present. Yes, it rarely pays to make the same mistake twice. After all, this is merely a little story of real life. I mean of real death.

SECURING A COLONY OF BEES FROM THE WALL OF A HOUSE

BY RUDOLPH OSTHEIMER

A farmer living near here came to me and asked if I could take a colony of bees out of the wall of his house. The bees had been there five years, right between two windows, and next to a door; and, with people passing constantly, the bees got pretty cross and were inclined to sting.

I had to take off considerable of the siding before I had the combs all uncovered. They covered a space 54 inches in height, 18 inches in width, and the entire space of 6 inches back to the plaster. There were

five large sheets of comb containing brood, and there were also eight queen-cells. I took two empty hives and placed the combs in the same position just as they were hanging in the wall. Other combs held about 150 pounds of honey.

I have been transferring colonies of bees from old trees and houses for the last few years, and have increased my apiary up to 85 colonies in this way. I wish I could get about 100 more.

Sandusky, Ohio.



Five long combs of brood, eight queen-cells, and 150 pounds of honey.

EUROPEAN FOUL BROOD, CHRONIC AND ACUTE

BY G. W. JOICE

On page 102, Feb. 1, Timberline Riggs describes a plan that I once thought would revolutionize the foul-brood question. I did that crowding stunt as Mr. Riggs recommends it, and it worked in some cases. It did very well where the colony was in fair shape so that it was not necessary to crowd lower than two Hoffman frames.

I am surprised that Mr. Riggs never heard of a case of European foul brood in bees taken from trees. I have found plenty of it in the combs and the brood. Mr. Riggs seems to have the opinion that, owing to the bees being closely confined in trees, they are able to cope successfully with the disease. I have seen hollow trees occupied by bees that contained more vacant space and a larger spread of combs than any domestic colony, and there was no disease. I have also noted a fair-sized colony cooped up in a hole containing no more space than four Hoffman frames, and with plenty of European foul brood.

With all due respect to Mr. Riggs, I wish to state that, after trying his cure for two seasons, I will positively guarantee that it will not cure in all cases, altho it checks it to a certain extent in most cases, and probably cures in some cases. In this location European foul brood just hangs around, sometimes a few cells here, sometimes there, and occasionally we have a season without seeing any. Thus far it has never been a serious pest, altho it may break out in an acute form at any time.

I feel very sorry for Bro. Holtermann; and with the number of colonies he usually has on hand, and the disease such as I have had in a few colonies, I should be looking at the dark side of the cloud also. Here is hoping for things to turn out for the better.

Page 107, Arthur C. Miller tells us why we fail in using his "distress" method of introducing queens. Arthur may have his system perfected for himself, but I cannot make the queen behave at the same time the bees are behaving. He speaks as tho he knew just how to do the stunt—he is always so sure of a thing when he tells about it—but with this "distress" method I am unable to succeed as well as with the cage and candy method. He says, "Create the distress; see that it is continued for ten minutes; and you never need worry as to the safety of the queen." Correct. When I bury a hen I never need worry as to her safety. I know where she is. But with the queen it is different, for she may be missing.

I should be willing to accept my results and keep quiet, but I think of the time when I was an amateur (perhaps I am yet), experiencing all kinds of mistakes. Then I would have thanked some one to tell me to go slow on the new idea; but I waded right in and got my experience with my knowledge, something like Dr. Miller.

Edon, Ohio.

GLEAMING MOMENTS

BY GRACE ALLEN

Oh! I greet you all with singing, and I come
to you rejoicing;

Of those moments I come chanting when
your hearts were like a flame.

All your glimpses of life's glory in my verses
I come voicing,

And I would that I could celebrate each
one of you by name.

One and all—oh! you have had them—
moments high and unforgotten,

When a sudden sweetness stirred you or a
sudden wideness thrilled,

Or a sudden vision swept you with intensity
begotten

Of your longings and your yearnings and
the things you would have willed.

Just a blossom may have brought it, or an
orchard in the budding,

Or a poet or a prayer, or the sunlight on
the trees—

But it came, dear hearts, it came! perhaps
in spring when life was flooding,

And the morning was a tingle with the
witchery of bees.

So I come to you with singing, and I hail
you with rejoicing,

And those moments I come chanting when
your hearts were like a flame;

And I would that I could fold them in a
verse forever voicing

All your ecstasy of answer when your
gleaming moments came!

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Mother got all excited last week over a story she read where a man made his tax money by pickling his combs and marketing them in glass jars. Come to find out he was in the chicken business.

Beekeeping in Florida; Schools, and Price of Land

Mr. E. R. Root:—I have known for some time that you have traveled considerably in Florida, and have been in position to learn a great deal from other sources. If it would not be asking too much of you I should like to submit to you some questions, and you may answer them by number. In order that you may better understand matters, I will give you an outline of the situation:

We have a farm of 140 acres, fine improvements; have improved the place with the intention of living and dying here. I have five children—a boy 18 and a girl 20 who will graduate from high school in June; the other three are younger. We are quite sure we have a buyer for this farm at \$225 per acre. If we sold everything but bees and fixtures and household goods we should probably have \$30,000 cash in hand.

We started 25 years ago with about \$400, and have always been on the conservative order, because we had nothing to lose. I have lived here all my life. It is a good bee country, good farming country, but I have thought for some time that I should

like to live in Florida; and when land is selling for \$225 per acre it becomes a problem as to whether a person can afford to keep it. Now for the questions:

1. Is Florida a good place to go if one wants to make beekeeping his business? If so, where would you go?

2. What outlet is there for honey, and what do producers usually realize per pound? Is it of good quality?

3. Would it pay to ship 120 hives and fixtures—a fine outfit—to Florida? or would you sell them and buy there?

4. What do you know about the trucking business, the pecan crop, and fruit business, as a proposition for a good bright boy just out of school? Would a location for the above lines be a good one for bees?

5. How about the schools in Florida as compared with those schools in the North?

6. Could a person live there as cheap as here?

7. Is the majority of the population white or black? What can you say of the society in general?

8. Is beekeeping in Florida so much different that a beekeeper from the North would have the business to learn over?

9. What does land sell for that would be adapted to the above lines?

10. Would you go to Florida if you were I?

11. What would the opportunities be for a young man or young woman, as compared to the North?

Iowa.

W. S. P.

[1. This question cannot be answered by a direct yes or no. Florida is a good place to keep bees, but you must get a location that is fairly good. The best parts of Florida for the production of honey are the northern parts up around the Apalachicola River, southeast Florida among the Keys, parts along the east coast, and spots along the west coast. The region in and about Bradentown is among the citrus groves and is likewise good. To get a good location we would advise your buying out some beekeeper who is already stationed, and who has his bees and outfit for sale.

2. The outlet for honey in Florida is usually the New York market. The price realized is not large, and most of it is extracted, usually sold by the gallon between 50 and 75 cents, or about five cents a pound. This is, of course, for the usual grades of honey, not orange. Orange honey will bring as good a price as ordinary northern clover, anywhere from eight and nine to ten cents, and usually sells very readily. Of course, this is for a pure orange honey. The mixture of a little palmetto or a little mangrove probably would not do any harm. The fact that a considerable amount of orange honey is produced around Bradentown would make this district a rather good one, provided the

yield from that source was always good, which it is not.

3. It would not pay you to ship 120 colonies and outfit to Florida. You had better sell them where they are, and buy bees after you get there. You could hardly ship bees to Florida unless you send a whole carload of between three and four hundred colonies, then go in the car with the bees.

4. We do not know anything about the trucking business or the pecan crop; but as a general proposition we may say that where fruit-growing is extensive it is generally fair for bees—that is, for a limited number. If you keep too many bees in an orange grove the yield per colony will be correspondingly reduced.

5. The Florida schools, generally speaking, are good, especially in the larger towns. They are the equal of any of the schools in the North. 6. Yes.

7. The majority of the population is white and mainly northern people. As one Florida cracker said, "Most everybody is from everywhere else." There are a good many colored people in the state, but as a rule they live in isolated districts.

8. Yes and no. A practical beekeeper of the North would very soon be able to learn the conditions in the South, so that he would be able to handle the keeping of bees profitably—that is, provided he could do so in the North.

9. We could not name any general figure, but the price of land is anything you care to pay. The closer the land is to towns or to water frontage the higher the price. It runs all the way from \$2 and \$3 an acre to \$10,000 and \$50,000 an acre. Usually the land in the large towns is rather expensive, but a mile or so out it is comparatively cheap.

10. This is a hard question to answer. We doubt if you could do any better by going to Florida than where you are. If you have made a success under the conditions in the North with which you are familiar it is doubtful if you would do any better in the South, and it is probable you would not do quite as well.

11. Generally speaking, the opportunities for a young man are better in the North than in Florida. On account of the large number of people who are compelled to go to Florida for lung trouble or other diseases the labor market is rather poor there. The same is true of California.

We would suggest that you spend two or three months in Florida traveling about, asking all the questions you can; but be very shy about accepting the statements made by the average real-estate man. Take, rather, the statement of some conservative person who goes down to Florida every year for his health and is not in any way interested in the sale of land. There are plenty of honest real-estate men there whose statements you can rely upon; and while Florida has its land-sharks that state is no worse

than any other state where development is going on. You will find conditions just as bad in Texas, New Mexico, Arizona, California, where there is a great onrush of people on account of supposed get-rich-quick propositions, or because people have to go into other climates on account of their health.—Ed.]

What Section or Sections are the Leaders? The Pound Section No More

I have been ill for a few months, and improved the opportunity of looking over Gleanings for the last twenty years. It made me notice more than ever before the tremendous advance and improvement in the bee industry, and especially in Gleanings. It is a high-grade magazine, and I am sure you may be congratulated for bringing it to such a high standard.

It has been about twenty years since I have been in touch with the comb-honey market. I am thinking of going or changing into comb-honey production; and should ing into comb-honey production, and should ent-day sections.

Do the markets in Ohio and adjacent states still prefer the tall section, such as 4x5? If not, what size has the preference?

Under the net-weight law, is it likely that the heavier 4x5x1½ will have the preference over the lighter 4x5x1¾? Or is the latter about the right net weight?

Do you know of any section besides the 4x5 and 4¼x4¼ which is likely to come into the lead? I like the 4¼x4¾ but don't like the fixtures. Besides, there are too many varieties already.

I want to be sure to receive your opinion as to be best thickness of the 4x5 under present conditions of markets and laws—for instance, whether there are any signs of a change in the future.

Fremont, Ohio.

Dr. C. G. Luft.

[While the 4x5 plain section is very popular, yet, taking the country as a whole, it is not the leader. The 4¼x4¼x1¾ beeway section is sold more than any other; but the 4x5 section is gaining in popularity everywhere it is sold, and we prefer it to any other style of package for comb honey.]

So far as the net-weight law is concerned, there is no advantage in the 4x5x1½ over the 4x5x1¾. Since the net-weight law went into effect, sections are not sold by the pound any more, but by actual weight, or minimum weight in ounces. We do not know of any sections besides the 4x5 and 4¼x4¼ regular beeway, 1¾, that is likely to come into lead. The last-mentioned section is already in the lead, and very possibly may hold its lead. In the western part of the country the 4¼x4¼ square section is used almost exclusively.

As to the best thickness of the 4x5 we recommend the standard 1¾ plain section. There is no likelihood that the 4¼x4¾ will come into any general prominence.—Ed.]

A. I. Root

OUR HOMES

Editor

The voice of one crying in the wilderness.—JOHN 1:23.

And their works do follow them.—REV. 14:13.

A sad task lies before me. T. B. Terry, whose name has been before our readers more or less for 40 years, is no more. From the *Ohio Farmer* I clip as follows:

T. B. TERRY DEAD.

T. B. Terry, well-known agricultural writer and lecturer, died at his home, Hudson, O., Jan. 1, aged 73. Mr. Terry had been in ill health for some years; in fact, about 20 years ago the doctors gave him only a year or so to live. Then he began a persistent system of dieting, exercise, bathing, and pure-air treatment, which was successful until his last illness began about eight weeks ago. He had lived for 45 years on the farm where he died. He went to Hudson in 1860, and entered the creamery business. Later he devoted his time entirely to farming, writing, and lecturing, receiving his first Ohio institute appointment in 1880, from secretary W. I. Chamberlain. Years ago he was a well-known writer for *The Ohio Farmer*. Of late years he has confined his writing entirely to one paper, and has specialized on health topics. His last book was entitled, "How to Keep Well and Live Long." He is survived by his wife and four children.

And again from the *Practical Farmer* as below:

It is with great sorrow that we announce to our readers the death on New Year's Day of our good friend, and theirs, Mr. T. B. Terry. For over twenty-five years Mr. Terry has contributed regularly to this paper, and "Terry's Talks" have been eagerly read by nearly every reader of *The Practical Farmer*. During his connection with this paper Mr. Terry has written on a broad range of subjects, covering every phase of agriculture, and in addition has contributed a most valuable series of health talks thru which a great many of our readers have profited in renewed good health.

Mr. Terry's death resulted from the recurrence of a malady which afflicted him twenty years ago, at which time his doctors told him that he could not recover, and expected his death in a very short time. In this emergency Mr. Terry exerted his indomitable will and courage; he studied his own case carefully, and thru a strict system of dieting, exercise, bathing, etc., he restored himself to perfect health. It was the knowledge and experience thus gained which Mr. Terry put into his health articles which have done so much good to readers of this paper. It was only when the weakening effect of advancing years joined hands with his old malady that he succumbed.

A host of our readers will join us in mourning for this wise and kindly gentleman whose highest aim always was to aid others and give them the benefit of the experience which he himself had gained thru years of toil and a valiant fight against ill health.

From a kind letter from Mrs. T. B. Terry, dated January 1, I learn that, since his sickness of about two years ago, he had often complained of a sore spot in his bowels, and remarked he feared it might give him trouble some time. Not long before he was taken sick he painted the roof to that "covered barnyard." Altho he worked at

it only three or four hours a day he always complained, when he came in, of feeling badly. The good wife tried to have him get help, but he wanted it done "just right." A little later, while the wife was away he carried several boxes of apples into the cellar. This proved "the last straw." Mrs. T. thinks if he had not insisted on painting that roof and carrying those apples himself he might have been enjoying fair health today.

Let me pause a little right here. While there is danger that some of us may get in a hurry to think we are "too old to be of any use," there are doubtless many who, like our departed friend, shorten their stay here by unimportant matters. One of the firm of the great nursery of Storrs & Harrison lost his life by lifting on a barrel of water that was to be used for irrigation. He had means enough to buy a whole pond or lake of water, and have it put where he wanted it.

Two most able physicians and two trained nurses were employed for Mr. Terry, but to no avail. His trouble was kidney disease and inflammation of the bladder.

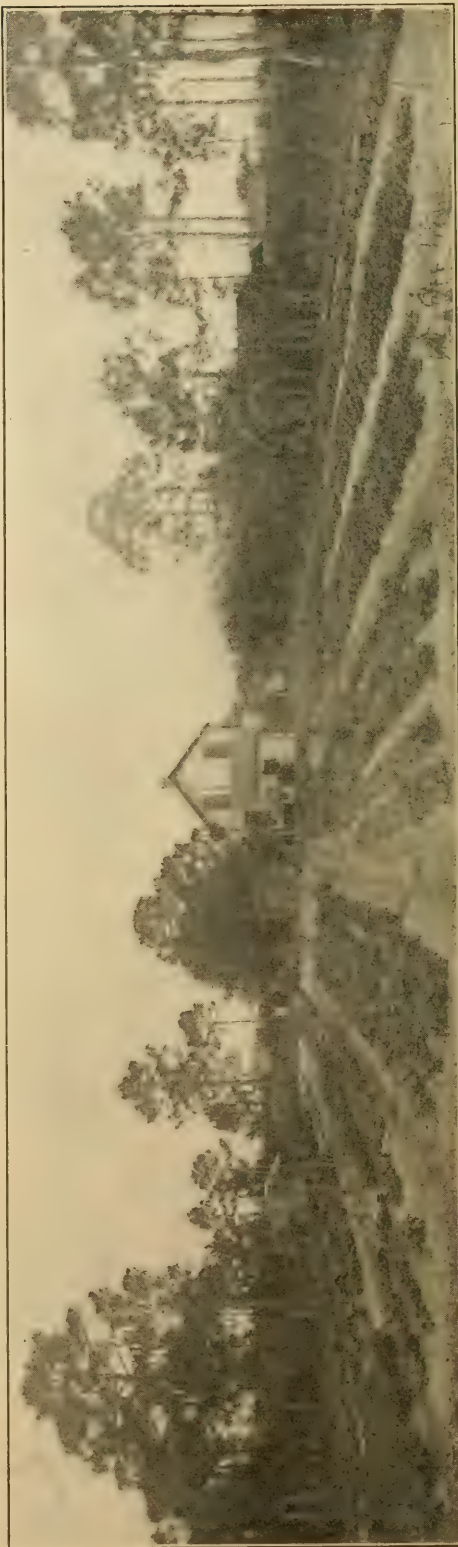
I first met Mr. Terry at a farmers' institute in Medina toward 50 years ago. He gave a talk on potatoes. It so impressed me I insisted on putting it into book form. His great theme was big crops of clover, all plowed under, as "green manuring" for the crop to follow. Later on he astonished the world with strawberries, grown by turning under clover and nothing else in the way of a fertilizer; and this brought out the book "The A B C of Strawberry Growing," and, still later, other farm books. Soon after the farmers' institutes found out, as I did, that, no matter what Terry "talked about," it was always interesting to an audience. It was not only the farmer himself he was glad to help, but his institute talk on "The wife's share" brought crowds of women out to his lectures. While I was away down in Missouri on one of my wheel rides I ran across him lecturing to crowds of farmers, with the wives and children also in attendance. As Medina is only about 30 miles from Terry's home I went over often to get pointers, and very soon I too was surprising the world with potatoes and strawberries grown by plowing under the biggest growth of clover I could produce.

Terry's health failed; and the doctors told him, if I am right, he had but a few weeks to live. He went clear to New York

city to get the best expert advice. Then he turned to nature and to nature's God. I was pretty close in touch with him all this time, for I was pretty nearly in the "same boat." The doctors said I could "never be a well man." As Terry climbed away from grim Death, he told about it in the *Practical Farmer*, and afterward, at my special request, he put it in book form. From a multitude of testimonials I will select just two letters.

During the spring of 1910 I was taken sick. Our family physician was called in. He treated me several weeks. I continued to get worse. I could walk around and work some during the first part of the treatment, but finally I had to stop all activity. I suffered day and night. Then I called in another doctor and continued to get worse until I was reduced in weight from 156 to 128 pounds. Then I went to a nearby town and entered a hospital for treatment. I was there five days without taking a dose of medicine; was examined by two doctors. The fifth day I asked them why they did not treat me. I was informed that they had just located my complaint and were ready to begin treatment. I asked the amount of charges during the time I had been there, and was presented with a bill for \$26. I paid it and started for home. In the meantime I had ordered Mr. T. B. Terry's book, "How to Keep Well and Live Long." On reaching home I determined to study it carefully and follow its teachings, which I did from that day to the present date. The 4th, 5th, and 9th chapters were my chief studies. I followed instructions closely. I cut out everything that Mr. Terry advised, even my tobacco, which I had used for 30 years, and today I feel as well as I ever felt in my life. My present weight is as usual when I have good health. I am fully convinced that one who will read, study, and live according to instructions of Mr. Terry's book, "How to Keep Well and Live Long," will never have occasion to call in any but a surgical doctor, as they will have no sickness, barring accidents. And to those who are sick I beg to persuade you to secure Mr. Terry's book and follow its teachings and cast aside all drugs, and you will surely have health.—C. C. LINDON, Emmerton, Va.

In the March, 1910, issue of GLEANINGS IN BEE CULTURE I first read the introduction of your book, "How to Keep Well and Live Long." The description of Mr. Terry's case, as given there, struck me as being very similar to my own at that time. I was suffering with a general breakdown of health, and under the care of a good doctor, but did not seem to get much better. I ordered a copy of "How to Keep Well and Live Long," and after a careful reading was very favorably impressed with the plain and forcible manner in which things pertaining to health and illness were explained and set forth. Also the plain, inexpensive instructions and suggestions toward right living. I became convinced that I had been working, breathing, eating, and drinking very carelessly, and began to set about to make some corrections and put into practice the teachings of the book, gradually, at first, adding one after another change as I re-read and studied it and became familiar with details. My first move in the right direction was for better air by opening windows top and bottom. How easy and simple! Strange I could not have thought of it myself, years ago, but did not—too busy and hadn't time. Then came the water-filter, then later the flesh-brushes (a long-handled one too) and sponge bath. Then the cutting down of improper foods and substituting prop-



A. I. Roof's one-third acre Florida garden consisting mostly of Irish potatoes.

er ones instead. Thus I kept gradually working into better and more healthful ways of living until I got everything about right according to the book. As the days and weeks went by I very slowly and surely began to improve, and now, after several months following the advice as taught in "How to Keep Well and Live Long," I can say that I have been greatly benefited in health, and expect to keep

on gaining until fully restored to health. My greatest regret is that I did not have or know of these things sooner in life. I feel, personally, full of gratitude to Mr. Terry for the book and for what it has done for me. He certainly has accomplished a great work which will be a blessing to the human race if it will but follow the truth Mr. Terry has put before them.—A. W. MCMASTER, Jacobsburg, Ohio.

HIGH-PRESSURE GARDENING

GLIMPSES OF OUR FLORIDA GARDEN, TAKEN ABOUT FEB. 15.

No. 1 shows how it is thrown up in beds, with deep wide paths between. These paths not only answer to some extent the place of tile draining, but they run the *cold air* down toward the canal, so that when we have a moderate frost or freeze my stuff is mostly unharmed, when garden truck on dead-level land is often killed outright. Nothing has been harmed in our garden so far (Feb. 21), except sweet potatoes. We are just now digging and selling our Irish potatoes at 25 cts. per half-peck basket, and the demand is ahead of the supply.

No. 2 shows the rhubarb that here in Florida must be planted in the fall and harvested before the summer rains. Just back of it, next to the fence, are some fine potatoes on new ground just reclaimed from the wilderness. In fact, said "wilderness" was just chopped up and put under ground to furnish humus. Potatoes seem to thrive better on new ground the first year than almost any other crop. On the upper right-hand corner you get a glimpse of what we call our "barn," with the shed on the south

side, where we have poultry-netting shelves on which to cure the dasheens.

No. 3 shows our method of growing "sprouted oats." The bed originally had five rows of oats, such as you see. Just before the picture was taken we pulled and fed to the chickens every other row and planted potatoes in their stead. The potatoes are not yet up; but when they are, we shall pull the remaining oats and cultivate and hoe the potatoes. Our chickens have learned to devour eagerly oats a foot high. It is an easy matter to pull them, root and all, out of the soft sandy soil.

Everything has been described in picture No. 4, except the great cassava roots. I might say, however, that one of the dasheens in the little basket in the foreground weighed over 4 lbs., and that the Red Bliss Triumph potatoes shown are two of the 25-ct. half-peck baskets set in a half-bushel basket. Now for the cassava:

Just about two years ago we set out (4 x 4 feet) some sprouted cuttings in one of the beds on our poorest sandy ground, giving them a very little fertilizer. The weeds were kept out until the cuttings were



Burbank Giant rhubarb with beets and carrots on the right.

well started, and almost no cultivation (and no fertilizer) since. When Wesley dug up those three roots I was astonished. The three were about all I wanted to carry; but I carelessly neglected to weigh them.* They are good nourishing food for man or animals; and as we have more on that one bed (perhaps 100 feet long) than the chickens can ever use, I have been seriously considering some pigs to utilize the crop. They can stay in the ground winter and summer until you are ready to feed them. In our soft sandy soil it is but a minute's work to reach down and "yank" out a root like those shown above. A drouth doesn't seem to hurt them at all. You may recall I have already printed extracts from a Government bulletin in regard to cassava for pigs, poultry, and other farm stock.

Near the basket of dasheens you will notice a small bundle of the bleached dasheen shoots that we call "dasheen asparagus." The other basket near the potatoes contains leaves of the Giant rhubarb.

* I am told indirectly I got the first premium on cassava, altho almost every county exhibit has cassava, more or less.

THE WILD CACTUS OF TEXAS AND MEXICO, AND SOMETHING ABOUT THE SPINELESS.

We clip the following from *The Times Union*:

CACTUS IN TEXAS; GOVERNMENT OFFICIAL SAYS
CATTLE ARE RAISED AND FINISHED ON IT THERE.
J. M. Doyle, manager in charge of United States



Winter turf oats, grown for poultry.

demonstration work in Texas, writes from San Angelo, Tex., as follows to American Spineless Cactus Inc., in answer to a query concerning the use of cactus as a stock food:

"All that territory from Beeville, Tex., on the east of El Paso, Tex., and on thru New Mexico, Arizona, almost to the eastern border of California, and on a line east and west thru San Antonio, Tex., on the north, to the Gulf of Mexico on the south, is, as all the people throughout that territory will attest, a wild-cactus-bearing country, and is used now and has been for many years by the ranchmen to feed their stock on, spines and all, and latterly, with the aid of the pear-burner, to burn the spines off. The cattle in nearly every case are fed on the wild cactus until it is finished and ready for the market; and this has been going on for years; but, as Mr. Dougherty well knows, it is more expensive to feed the wild cactus on account of the sharp spines than it would be to feed the spineless variety of cactus, and the wild cactus does not by any means produce the tonnage per acre that the spineless variety does.

"This is no secret. Any one can investigate and see for himself if he only would.

"This wild-cactus territory is many times larger than Florida, and thousands of stock of all kinds, but principally beef cattle, are fed on it the year round in many sections of it, and in large portions of this territory there is almost absolutely nothing else that can be used for feed than this wild cactus.

"There is no question at all as to the commercial status of feeding cactus. There is no feed in the world that can match it for economy and results when the cost is considered."



A. I. Root's exhibit of garden truck at the South Florida fair held at Tampa in February.

We have the wild cactus of Mexico in our garden by the side of the spineless, and they started to grow several weeks sooner than the spineless. They are now, Feb. 24,

in bloom, and some have fair-sized fruit, not yet ripe. The very first cactus to start down here was Malta, the one I pictured last summer (p. 690). I pulled off the eight slabs, packed the whole in my trunk, and in less than 30 days every one was budded, and now we have from that one slab, sent to Medina last July, 30 growing slabs, counting "children and grandchildren."

A GASOLINE TORCH FOR BURNING WEEDS, AND
SPINES ON PRICKLY PEAR CACTUS.

I have been over a year trying to find out where

I could buy a gasoline torch to burn weeds and dodder in alfalfa. It was used a few years ago in the San Jacinto Mountains to burn the spines off cactus for cattle to eat.

The tank of the torch is strapped across the shoulders, and is easily carried. A pipe about 4 ft. long is furnished so as to have the blaze at a distance. It will throw a blaze about 6 inches in diameter, and from one to four feet long if desired.

DAVID CHRISTIE

Veterans' Home, Cal., Sept. 2.

I think I have seen something of this kind advertised. Can any reader of GLEANINGS tell us where it can be found—cost, etc.?

TEMPERANCE

DID ABRAHAM LINCOLN EVER USE, SELL, OR
RECOMMEND "BOOZE"?

The following came to me from my son,
H. H. Root:

I am enclosing a bulletin put out by the Methodist Church Temperance Society, which gives the first denial that I have ever seen of the oft-repeated statement by Lincoln that prohibition works a great injury to the cause of temperance, etc. Every campaign we have had in Ohio, the wet leaders have flooded the state with this statement, supposed to be by Lincoln. I have never believed it, and have tried to find some one who could give the truth about it. These Methodist men have gone to the trouble of ferreting out the whole shameful process by which Lincoln's temperance utterances were twisted into arguments to favor the wet side. I thought you would like to see this.

The article mentioned is too long for our use here; but the whole story may be had by addressing Deets Pickett, 1-6 Shawnee Building, Topeka, Kansas. It covers the whole ground so completely, there is no possibility of mistake.

"GOD'S KINGDOM COMING."

Here is another good thing in that same Methodist Bulletin. We clip as follows:

NEW YORK TRIBUNE SOON WILL CEASE TO ADVERTISE LIQUORS; NEWSPAPERS IN ALL PARTS OF THE COUNTRY ARE CLEANING THEIR COLUMNS IN RESPONSE TO THE BIRTH OF A NATIONAL CONVICTION.

In a letter to Rev. Clarence True Wilson, D.D., General Secretary of the Temperance Society of the Methodist Episcopal Church, the New York *Tribune* announces that after April 1st, next, it will no longer accept advertising of any alcoholic liquor. The letter reads as follows:

"February 7, 1916.

Clarence True Wilson, D.D.:—After April 1st, next, we shall not carry the advertising of any alcoholic liquor. At present we carry this advertising on a non-solicited list entirely, barring all statements which present any such beverage as having food or tonic value.

RICHARD H. WALDO."

This act of the *Tribune* will send a thrill of gratification thru millions of prohibitionists of the United States, and will have the approval of millions of other men and women who are not prohibitionists.

The Indianapolis *News* and the Scranton *Republican* are two other papers which have recently taken this step.

In response to an inquiry sent to all of the daily newspapers of the United States, the Methodist Temperance Society has received more than 1000 replies. There are 2123 daily newspapers published in the English language in the United States, according to the American Newspaper Directory for 1916.

The result of this inquiry will be announced in a special bulletin issued by the Temperance Society in a few weeks. It is already apparent that the year 1915 brought about an astonishing revolution in the attitude of the newspaper world toward alcoholic beverages.

May God bless the Methodist Temperance Society.

"GOD'S KINGDOM COMING" IN RUSSIA IF NOT
IN AMERICA.

Dear Mr. Root:—The enclosed clipping may be of interest and good use to you in your worthy work.

WM. A. HUNTER.

Terre Haute, Ind., Feb. 14.

The good friend who sends the above gives no clue as to where he clipped it, so we are unable to give proper credit. Below is the clipping:

RUSSIA DRY FOREVER AS RESULT OF YEAR WITHOUT
HER VODKA.

PETROGRAD, Feb. 10.—Russia has taken a long breath, raised her solemn right hand, and sworn:

"Never again!"

A year without vodka has convinced the officials, from the czar down, that prohibition will always be the rule in Russia. Here are some results of the first twelve-month without liquor, as reported officially and semi-officially from all over the country:

Crime (all kinds) has decreased 62 per cent.

Absenteeism in factories has fallen 60 per cent.

Suicide rate has dropped enormously.

Hospitals formerly overcrowded are not filled.

Efficiency in factories increased 10 to 15 per cent.

Practically every inhabitant is at work.

Savings deposits have increased 8 per cent.

Fire damage has fallen off 38 per cent.

Wages in some districts raised 500 per cent.

(This applies to peasants working as day laborers.)

People are eating better and costlier food.

Better clothing is worn by the poorer classes.

Agricultural-implement sales 60 per cent larger.

Imprisonment decreased 72 per cent.

OVER FIFTEEN THOUSAND BARRELS OF BEER LESS IN 1915 THAN THEY SOLD IN 1914.

The *Plain Dealer* informs us that The Dayton Breweries Co., Dayton, O., sold 15,185 barrels of beer less in 1915 than 1914, and I think most of the breweries could make a similar report. Even if Cincinnati did keep Ohio wet, God's kingdom is steadily "marching on," even in Ohio.

MICHIGAN'S SPLENDID RECORD; HAVE KNOCKED OUT ONE SALOON A DAY FOR PAST EIGHT YEARS.

Michigan drys are well organized for the campaign for statewide prohibition to be conducted this year. Hon. R. H. Scott, manager of the Reo Automobile Company, of Lansing, is chairman of the Michigan dry committee. The whole campaign organization is well manned and equal to the work. Summarizing the results of the work done by the Anti-saloon League in Michigan, Mr. Scott says:

"The results of the work of the Anti-saloon League in this state are 2934 fewer saloons than there were eight years ago. The decrease in saloons averages 366 a year, or one for each day for the past eight years. There are 3236 left, and about half of this number are located in Wayne County, in which is the city of Detroit."—*American Issue*.

Good for the "Reo" folks!

SOMETHING TO MAKE YOU OPEN YOUR EYES.

We clip the following from the *Youth's Instructor*:

WAR'S BLOODY TOLL.

If the European war continues at the present rate of destruction until April, 1916, it is estimated by a distinguished war writer that 19,700,000 men will have been killed or permanently disabled. This means that thirty-seven of the chief cities of our country, according to the government's 1912 estimate of their population, would have to be depopulated of men, women, and children to furnish a number of persons equal to the war victims of Europe's bloody battlefields. The cities are: New York, Chicago, Philadelphia, St. Louis, Boston, Cleveland, Baltimore, Pittsburgh, Detroit, Buffalo, San Francisco, Milwaukee, Cincinnati, Los Angeles, Newark, New Orleans, Washington, Minneapolis, Jersey City, Seattle, Kansas City (Missouri), Indianapolis, Providence, Portland (Oregon), Rochester, Denver, Louisville, St. Paul, Columbus (Ohio), Toledo, Oakland (California), Atlanta, Worcester, Birmingham, Syracuse, Little Rock, and Lincoln (Nebraska).

QUEENS WANTED IN WINTER.

Mr. Root:—I wrote your agent at Savannah for an Italian queen; but he informs me it is too early for shipment. Could you advise me of any one in your vicinity who has queens for sale now, as I am very anxious for one at once!

I have a very populous colony that I wish to divide. The palmetto and orange are beginning to bloom. I suppose I am your furthest-south "bee-woman" subscriber. My bees are making a great deal of honey, and have made quite a bit since September.

I am a beginner with bees; but I love to work with them. The Italians here are much gentler than those my father raised in Kansas. I shall increase my colonies as fast as possible.

ROSELLE OR JAMAICA SORREL.

I read your article about Jamaica sorrel. I have raised it for three years, and am much pleased with it. I have quite a bit of seed if any one desires it. Homestead, Fla. MRS. CLARA KILLINGER.

So far as I can discover, no one has ever undertaken to furnish queens, either here or in California, before March 15 or April 1, and yet my two neighbors Ault and Abbott have both had queens hatched and fertilized every month in the year. I have been expecting every year some one would advertise queens in winter time—of course at a large price. There would, perhaps, be some risk in mailing them very far North; but I feel sure it *can* be and *will* be done soon. Of course no one should undertake it without previous large experience in queen-rearing.

NUCLEI BY EXPRESS FROM YORK STATE TO FLORIDA.

Our neighbor, E. A. Redout, had four six-frame nuclei sent by express in January from his home in York State down here at a cost of only \$3.00; and as he had here hives of empty combs they promise to make good colonies soon. The charge of only 75 cts. per nucleus he thinks quite reasonable. They came in perfect condition.

ANOTHER CHRISTMAS PRESENT.

In token of my brotherly love and friendship, and in appreciation of your several favors, and in approval of the good work you are doing, and hoping your appetite for meat is good, I am sending you by mail a little fresh meat for Christmas. It is a little rare, perhaps, but this kind of meat won't spoil. Besides, it is *canned*, and was canned *alive* at that, and as it wasn't butchered it is genuine fresh meat, sure enough. You may open the cans any time, and it won't die nor putrify before Christmas. And you won't have to disguise it nor pepper it nor salt it and stuff it with sage, nor smother it with onions to make it go down, nor take dyspepsia tablets to hold its breath down! And, best of all, it springs forth from the bosom of Nature like the succulent herbs of the garden, the waving grain of the field, and the luscious fruit of the vine, supplying rich and palatable food for man, free from disease and impurity, and without causing pain or death to any innocent creature.

"Behold I have given unto you the fruit of a tree; to you it shall be for meat."

Monticello, Fla., Dec. 10. SAMUEL KIDDER.

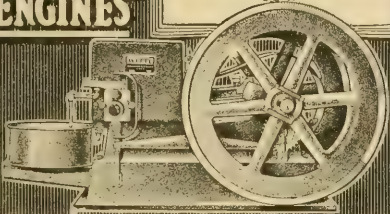
And now, dear friends, what do you suppose came by parcel post, that fulfilled to a dot the above "specifications"? A box of extra-fine large paper-shell "pecans!"

I wish to thank the publishers of GLEANINGS for sending it to me this year, altho I did not send in any money for it. I was unable to do so, as Russian postoffices do not accept money orders out of this country since the beginning of the war. Now the year is again drawing to its close, and I am at a loss how to send the subscription money. If the publishers will continue to send me GLEANINGS I shall be very thankful, and, of course, will send the money as soon as possible—that is, as soon as the war ends. It would be a great disappointment to me not to get GLEANINGS, as I am an old subscriber, and have a large apirary. GLEANINGS is very interesting to me, as well as useful. I hope I shall not be deprived of the pleasure of receiving it.

Aria, Russia, Nov. 18. MISS M. OULIANINE.

"HOW TO JUDGE ENGINES"

A Valuable Book Free!



EVERY man who has any idea of buying a Kerosene or Gasoline Engine should have this book.

Discusses different types of engines; how constructed; how operated; how cylinders and other parts should be made to give greatest efficiency.

It has taken 30 years of engine building experience for me to learn the facts in this book. Yours for the asking.

My 1916 Model Engines are the greatest value I have ever offered. All sizes pull from 30 to 50% over factory rating.

WITTE Engines—built by experts. Free Trial—Easy Terms.

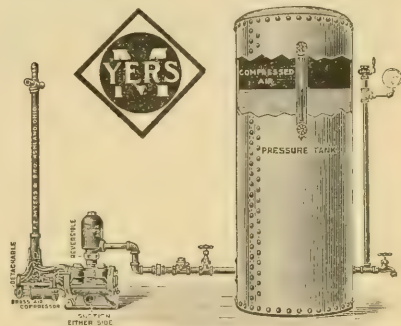
ED. H. WITTE, WITTE ENGINE WORKS,
1931 Oakland Avenue, : Kansas City, Mo.
Empire Bldg., : Pittsburgh, Pa.

MYERS HYDRO. PNEUMATIC PUMPS

FOR HOME WATER SUPPLY

MYERS HYDRO - PNEUMATIC PUMPS are rapidly growing in popularity, for they are ideal for the home water supply. Made for hand or power operation, in numerous styles and sizes, they meet everybody's requirements. Air and water are pumped through the same discharge line into the pressure tank. The air, compressed in the top of the tank, forces the water through the distributing lines.

Write for our catalog of Home Water Supply systems. It is free for the asking.



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GOOD SEEDS



GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

SCARFF'S Fruit Catalog



Every reader should have a copy. Over 27 years growing the finest Strawberries, raspberries, Blackberries, Currants, Gooseberries, Grapevines, etc. All kinds of Fruit Trees, Ornamental Shrubs, Privets, Barberry, Asparagus, Rhubarb, Horseradish, and Farm Seed.

Our Nursery and Farms comprise over 1200 acres in the fertile Miami Valley. Our 40-page catalog is yours for the asking. It is full of just what you want to know about fruit-growing.

W. N. SCARFF, Lock Box 50, New Carlisle, O



Won GOLD MEDAL at World's Exposition San Francisco

NEW KEROSENE LIGHT

10 DAYS FREE

BEATS Electric or Gasoline
SEND NO MONEY CHARGES PREPAID

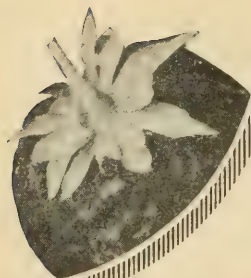
We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it **Burns 50 Hours on One Gallon** common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. **It's GUARANTEED.**

Men Make \$50 to \$300 Per Month with Rigs or Autos

delivering the ALADDIN on our easy trial plan. No previous experience necessary: Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 61 lamps the first seven days." Another says: "I disposed of 37 lamps out of 51 calls." Thousands who are coming money endorse the Aladdin just as strongly. **NO MONEY REQUIRED.** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. **Sample sent for 10 DAYS' FREE TRIAL.** We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp **FREE** for showing it to a few neighbors and sending in their orders. Write quick for **10 DAY ABSOLUTELY FREE TRIAL.**

MANTLE LAMP COMPANY 302 Aladdin Bldg. CHICAGO; NEW YORK CITY; PORTLAND, ORE. MONTREAL or WINNIPEG, CANADA

Lights Entire Room Largest Kerosene (Coal Oil) Mantle Lamp House in the World



BERRIES, 2 cts. QUART

or less, fresh from your own garden, May till October.

COLLINS' FRUIT GUIDE FREE

shows this remarkably productive, easily grown, long-season group of strawberries and raspberries in natural colors. Only requires garden space 12 feet square.

Arthur J. Collins, Box 42, Moorestown, N. J.



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Here's a book of daily needs you should keep handy. It lists the best of every thing for the orchardist and truck grower. Standard spray materials, harrows, cultivators, graders, pickers, packing boxes, etc. If there's anything needed, "ask Pratt." You know him—he's the man who makes "Salecide—the tree saver." Everything else he sells is just as good.

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BIGGEST MONEY-MAKER KNOWN—INVESTIGATE

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TREES TESTED SEEDS

Roses, Plants, Vines

Don't run risks when you can buy at growers' prices, direct from America's largest nurserymen. 62 years' reliability and experience. Thousands of hardy, healthy specimens of choice Fruit and Ornamental Trees. Over 1200 acres—48 greenhouses. Safe arrival and satisfaction guaranteed.

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192 pages—America's Nursery Authority. Tells about proper selection, planting and care. Saves you money—makes you money. Write at once for Seed, Rose, Plant, Shrub and Tree Catalog No. 2. Fully illustrated. It's FREE. Address Today—Dept. 314.

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Hill's Evergreens Grow



All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops. Hill's Evergreen Book, illustrated in colors, Free. Write today.

D. Hill Nursery Co., Box 2463
Dundee, Ill. Evergreen Specialists

More Profit

THROUGH better, more intelligent, more economical use of good tools will come the profit that is so hard to find each year on many crops. Plant right so you will get full benefit. Work faster with better tools so you can cultivate and spray often. Study whether there isn't some tool that will do your work better.

IRON AGE

Potato machinery, spraying machinery, garden tools, etc., are built to give you just what you need to do things right. Almost any combination you can think of in each line. Eighty years of factory and farm experience behind their manufacture.

Ask your dealer to show them, but write us for separate booklets fully describing lines in which you are interested. Let us make good our claims.

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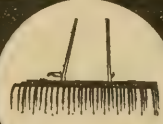
Combined Drill and Wheel Hoe



100 per cent Potato Planter



Riding Cultivator Steel Frame



Seven-and-a-half foot Weeder



No. 190 Barrel Sprayer



Horse Hoe and Cultivator

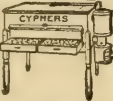
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Big FREE 1916 Poultry Guide. Describes Cyphers Popular-priced Incubators, 3 styles—8 sizes, 20 year leader-ship. Write today.



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50 Best Paying Varieties

Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Pure bred heaviest laying strains. Fowls, Eggs, Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free. W. A. WEBER, Box 964, Mankato Minn.



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9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted. Rochester Spray Pump Co. 207 Broadway Rochester, N. Y.

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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO. 306 E. 5th St., Canton, O.

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200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. LEWIS ROESCH, Box H, Fredonia, N. Y.

STRAWBERRY Plants

that will produce a crop in June; \$1.00 per 100, \$3.00 per 1000. Seed catalog tells what to plant; how to plant; how to destroy every bug and insect. Free.

P. J. Jersey . . . West Park, Ohio



30 Days FREE TRIAL

and freight prepaid on the new 1916 "RANGER" bicycle. Write at once and get our big catalog and special offers before buying.

Marvelous improvements. Extraordinary values in our 1916 price offers. You cannot afford to buy without getting our latest propositions. WRITE TODAY.

Boys, be a "Rider Agent" and make big money taking orders for bicycles and supplies. Get our liberal terms on a sample to introduce the new "RANGER."

Tires, equipment, sundries and everything in the bicycle line half usual prices. Auto. and Motorcycle Supplies. MEAD CYCLE CO., DEPT. A 113, CHICAGO

Planet Jr. Hand Cultivators

The garden tools for big results

They are saving time, lightening labor, and producing better crops for over two million farmers and gardeners. Planet Jr tools last a life-time. Fully guaranteed. 72-page Catalog, Free!

Describes over 70 tools including 12 entirely new ones, and improvements to our Seeders, Wheel-Hoes, Horse-Hoes, Harrows, and Corn, Potato, Orchard, and Beet Riding-Cultivators. Write for it today!

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No. 11

We make 32 styles of seed-drills and wheel-hoes—various prices.



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Green's trees have gained in past 40 years an enviable reputation for their productiveness. They are all hardy, northern grown, in our own nurseries where they have a chance to develop best. You can depend upon their full development and strong bearing in any climate. Our years of direct shipping to satisfied customers has built our great nurseries. Every shipment contains only healthy, shapely, well-rooted trees that uphold our reputation. You can be sure of every tree you buy direct from Green.



Budding Young Trees at Green's Nursery

Green's Apple Collection No. 1

10—XXX, 5 to 7 ft., 2 yr., Apple Trees:

1 Banana	1 Northern Spy
4 Green's Baldwin	1 R. I. Greening
2 McIntosh	1 King of Tomp. Co.

Special price, \$2.30.

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10—XXX, 5 to 7 ft., 2 yr., Std. Pear Trees

5 Bartlett	2 B. d'Anjou
1 Kieffer	1 Seckel
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Special price, \$2.70.

Order these Special Collections of varieties of trees tested, and selected by Chas. A. Green. Many more special collections in new catalog.

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It is finely illustrated and gives practical, useful information on the care of fruit trees. Remember you have the advantage of buying right from the grower. No dealer or agent to pay. There's no nursery like Green's for value. Send for the catalog today.

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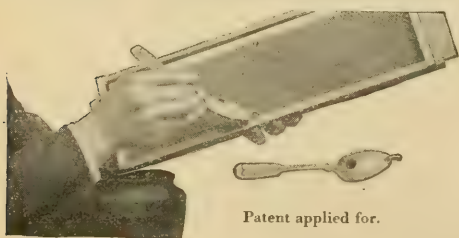
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My queens are bred from imported mothers.

They are the best for honey-gathering and gentleness.
I fill orders as promptly as possible.

GUARANTEE that all queens will reach you in good condition, to be purely mated, and will give perfect satisfaction.

PRICES --- April 1 to July 1

Untested	one, \$0.75; six, \$4.25; doz., \$8.00
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We can furnish tested Italian queens by *return mail*, \$1.00 each. These queens are not cull nor inferior in any way because they are cheap. They were reared last September and October, and wintered in four-frame nuclei expressly for our early spring trade in tested queens. We expect to have untested queens ready to mail about April 10; \$1.00 for single queen; \$9.00 per dozen. We began rearing queens for sale in 1886. Our strain of three-band Italians is well known to leading beekeepers. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. We solicit your orders.

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Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, Ohio.

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FOR SALE.—26 double-story ten-frame Langstroth hives, metal roofs, hive-stands, and super fixtures; no frames; \$30; painted, and in good condition.

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Will work season in Texas for 100 col. increase, I to furnish my hives, etc. F. W. MORGAN, DeLand, Ill.

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WAIT! Before ordering, get our 1916 pure-seed book, printed in four colors; describes our Royal Purple Grand Champion Pure Tested field, vegetable, and flower seeds, fruit-trees, vines, shrubs; plants at lowest wholesale cut prices.

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Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

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FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later. N. FOREHAND, Ft. Deposit, Ala.

Bees by the pound shipped anywhere in the U. S. or Canada. Safe arrival guaranteed. Capacity, 100 lbs. a day. M. C. BERRY & Co., Hayneville, Ala.

I am now booking orders for golden and three-banded Italian queens. Early delivery. Write for prices. D. L. DUTCHER, Bennington, Mich.

Write us for our prices on Italian queens and bees by the pound. Are prepared to take care of you. R. V. & M. C. STEARNS, Brady, Texas.

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Northern-bred Italian queens, untested, \$1.00; selected tested, \$1.50. Bees by pound. Safest plans. "How to Introduce Queens, and Increase," 25 cts. List free. E. E. MOTT, Glenwood, Mich.

Order queens now for March and April delivery. Three-banded Italians, the business bee; untested queens, \$1.00 each, fully guaranteed; no disease. M. F. PERRY, Bradentown, Fla.

Italian bees, Moore's strain, in new 10-frame dov. hives, painted white, in good condition; warranted free from disease; \$6.50 per colony. Safe delivery guaranteed. N. P. ANDERSON, Eden Prairie, Minn.

Golden California Goldens, 60 cts. each. We sell cheap, as we manufacture all of our own supplies. ALAMEDA APIARIES, 1042 Alameda Ave., San Jose, Cal. W. A. BARSTOW, Breeder.

A few choice three-banded Italian queens for early delivery. Booking orders now. Tested queens, \$1.50 each; breeders, \$5.00 to \$10. Untested, after April 1 to 15, \$1 each. O. E. MILAM, Moore, Tex.

FOR SALE.—75 colonies of hybrid bees in 8 and 10 frame hives. Price \$375; with all modern apiary equipment, \$500; will sell bees without equipment. NILES HILLMAN, Greenwich, N. Y.

Now booking orders for three-frame nuclei Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction. S. G. CROCKER, JR., Roland Park, Md.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June 75 cts. each; 6 for \$4.25; 12 for \$3.00. For larger lots write CURD WALKER, Jellico, Tenn.

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FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$5; 10-fr., \$6, with queen. HENRY SHAFFER, 2860 Harrison Ave., Cincinnati, Ohio.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.

G. W. MOON, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. THE DEROY TAYLOR Co., Newark, N. Y. (formerly Lyons).

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Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

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To those of my customers who bought queens from me last season that didn't give perfect satisfaction I will make them a present of a fine young queen this spring. HENRY S. BOHON, Box 212, Rt. 3, Roanoke, Va.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY Co., Haileybury, Ont.

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J. W. SHERMAN, Valdosta, Ga.

M. C. Berry & Co., successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list. M. C. BERRY & Co., Hayneville, Ala.

We are booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young untested Italian queens, 75 cts. each, or \$8.00 per dozen. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

FOR SALE.—Young tested Italian queens, reared late last fall. These we offer for only \$1.00 each as long as they last if taken by April 15. They are beautiful queens and will give you satisfaction. We offer them at this low price in order to move them to make room in our nuclei for queen-cells in early spring. M. C. BERRY & Co., Hayneville, Ala.

Having secured breeders of Dr. Miller, we are offering daughters of his famous strain of Italians at the low price of \$1.50 each. Queens of our own strain at 75 cts. each; 1 lb. of bees, \$1.50; 2-frame nuclei, \$2.25; full colony in 8-frame hive at \$6.50; 10-frame, \$7.50; 200 colonies for spring delivery at \$6.00 each, 10-frame hives.

THE STOVER APIARIES, Mayhew, Miss.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier if necessary.

THE HYDE BEE Co., Floresville, Tex.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 135, Buffalo, Texas.

QUEENS.—Italians exclusively; golden or leather-colored. One select, untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction guaranteed. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—Swarms of Italian bees in packages, 1 lb. of bees, \$1.50; 2 lbs. of bees, \$2.50; for 50 or more they are 12½ cents less. Untested Italian queens 75 cts. each; tested Italian queens, \$1.25 each. No reduction on quantity of queens for April and May. Quality, service, safe delivery, and no disease, I guarantee. We spare no labor nor money to produce the best for you is why we cannot make a lower price. Early swarms get the honey. We can deliver the goods with pleasure to both of us.

W. D. ACHORD, Fitzpatrick, Ala.

The successful package-shipper and queen-breeder.

BEES AND QUEENS.—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey-gatherers. We breed this stock only, and guarantee delivery only to points west of the Rocky Mountains. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100; tested queens, \$1.25 each; \$12 per dozen; \$85 per 100. Three-frame nuclei, \$2.25 each; \$200 per 100. Bees, ½-lb. packages, 75 cts. each; \$6.00 per 100; 1-lb. packages, \$1 each; \$85 per 100. Add price of queens to above packages. Complete catalog free on application.

SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Italian bees by the pound, and select-bred Italian queens. One-pound swarms without queens, \$1.25 each; 2-lb. swarms without queens, \$2.35 each; 3-lb. swarms without queens, \$3.35 each, and 5-lb. swarms without queens, \$5.35 each. If queens are wanted with swarms, add price as according to price list below. Untested, warranted purely mated queens, 75 cts. each; tested queens, \$1.25 each. All queens are bred according to our plan of breeding only from colonies or queens of the highest standard—those that have made the best record in pounds of honey. These select colonies are the choice of over 1000 hustling honey-producing colonies. Every queen we warrant to be purely mated or we replace her, free of charge. Every pound of bees we guarantee to deliver alive and in good shape, and full weight. We have no disease. Safe arrival and satisfaction we guarantee on both queens and bees in packages. For wholesale prices on either queens or bees by the pound write us. Let us book your order now. Only a small payment down required. M. C. BERRY & Co., Hayneville, Ala.

HELP WANTED

WANTED.—Able-bodied experienced beemen for season of 1916. W. W. FAIRCHILD, Heber, Cal.

WANTED.—A queen-breeder of experience, April 1. Give references, salary wanted, etc., in first letter. M. C. BERRY & Co., Hayneville, Ala.

WANTED.—An experienced apiarist. State wages, experience, and give references as to ability. Board furnished. THE STOVER APIARIES, Mayhew, Miss.

WANTED.—Experienced beeman, familiar with taking extracted honey, and to help handle 450 colonies. Give experience, and wages expected in first letter. Will commence April 1. D. B. ELLIS, Benson, Ariz.

WANTED.—Young man to assist in outyards and on small farm when not working bees. Board and lodging provided. State age, weight, wages, experience, etc. A. L. COGGSHALL, Groton, N. Y.

WANTED.—Single man, experienced, extracted-honey producer or assistant, at once; farm-raised, and of good habits; must be willing at odd times to help at light farming. Good home and permanent position to right party. One acquainted with autos preferred. THE HOFMAN APIARIES, Janesville, Minn.

WANTED.—Man with some experience to take care of 150 colonies of bees for 1916, and who, if conditions suit him, will buy bees or take them on shares for 1917. German with some experience in farming preferred. Give all particulars in first letter.

CHAS. BENTRUP, Deerfield, Kan.

WANTED.—Can take two clean minded and bodied young men as student help for the season of 1916. Board free for help given, and something more if a good season and help does well. One understanding an auto preferred. Address R. F. HOLTERMANN, Brantford, Ontario, Canada.

WANTED.—Young man with a little experience; fast willing worker—a student helper in our large bee business of over 1000 colonies; crop last year over 105,000 lbs. Will give results of our long experience, and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer.

E. F. ATWATER, Meridian, Idaho.

SITUATIONS WANTED

WANTED.—Position in beeyard. I have a diploma and 5 years' experience. Good reference; apply at once.

JAMES A. MAINES, Nile, N. C.

College student, wishing to learn the bee business thoroughly, desires position in an apiary after May 2. Habits good. W. J. NOLAN, 2100 Adelbert Road, Cleveland, O.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00, return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.

H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italians bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

ON THE BOOKSHELF

The Apple.

The claims of the honeybee upon the fruit-grower come in for acknowledgment in a new volume entitled "The Apple," by Albert E. Wilkinson. Not only does the author warn against spraying at the wrong time, lest it kill the bees, but at another part of the book he thoroughly sums up the relation of bees to the pollination of the apple-blossom. No other work on orchard methods that we have seen treats these important subjects with more practical thoroughness.

"Every large orchard" writes Mr. Wilkinson, "where the trees are numbered by the thousands, should have near by a beeyard of at least fifty swarms to help in thoroughly pollinating the blossoms and

obtaining the best results. Bees will not be poisoned by the spraying of fruit-trees with poisonous substances if the work is done at the right time, which is just after the blossoms fall. No sensible orchardist will spray his trees while in full bloom, and thus poison one of his best friends—the bees."

Honey-producers have a practical interest in getting this book into the hands of the orchardists near them, or into the local public library for the sake of the directions on spraying.

The author is a member of the faculty of the Department of Horticulture in Cornell University. The aim of his book is to bring together and boil down the great mass of literature dealing with the various aspects of the apple business—growing, harvesting, and marketing. The entire subject has been studied in every phase from one end of the country to the other. The text contains many helpful illustrations, including four full-page color plates.

The Apple, 492 pages. Ginn & Co., Boston, \$1.00 postpaid.

Automobile Questions and Answers

How can you adjust a carbureter by the color of the gases? How are valves timed? What is the difference between double and dual ignition systems? Answers to such questions as these the ordinary driver of automobiles often wants to know, and usually has no better way of absorbing the information than to stay around garages and quiz the workmen.

Books there are, but most of these have been written by the expert for the expert. A thoroughly practical text-book, working from elementaries to technicalities, has long been wanted. Such is a new volume by Victor W. Page, entitled "Questions and Answers Pertaining to Automobile Design, Construction, Driving, and Repair." In this treatise of 622 pages the author has explained from every angle all the driver of a car needs to know about his machine, and gives a good technical education in automobile repair. The matter is made clear by 329 illustrations and plates.

The Norman W. Henley Publishing Company, New York, \$1.50 postpaid.

Convention Notices

The twenty-fifth anniversary of the Connecticut Beekeepers' Association will be held in the old Supreme-court room, State Capitol, Hartford, Ct., Saturday, April 8, 1916.

MORNING, 10:30.

Reports of officers and committees; election of officers; collection dues; new business, etc.

"Reminiscences, and Progress of Beekeeping in Connecticut, George H. Yale.

Mr. Yale was third president of the association, and presided continuously for five years. His address will deal with the early history of our association.

"History of Foul Brood in Connecticut," Stephen J. Griffen.

Mr. Griffen was the pioneer in inaugurating laws in this state for the control and suppression of this scourge.

"Can a Woman Manage an Apiary?" Mrs. D. R. Bristol.

Mrs. Bristol is one of our ardent beekeepers. Her address will be of special interest to the ladies.

Recess, 12, for lunch.

AFTERNOON, 1:30.

"Beekeeping in Hungary," Alexander Luko.

Mr. Luko will tell us of the interesting methods and appliances in use in Hungary. He possesses a number of certificates and medals for beekeeping, awarded by the government at various competitions.

"Ventilation Affecting Storing and Swarming," John T. Cullen.

Question-box.

Our association is twenty-five years old this year. In commemoration of the event, the program committee is offering a program of unusual interest. From a membership of 11 we have grown to more than 150, and we continue to grow. It is planned to make this meeting a reunion, and it is hoped the entire 150 members will make a special effort to be present. As a special inducement, a hot dinner will be served, free of charge, at noon, to all members in attendance. This should be the largest meeting in the 25 years of our existence, and the most enjoyable and profitable one as well. Let us not forget about the prompt payment of dues. If GLEANINGS fails to arrive, it is because dues remain unpaid.

Hartford, Ct.

L. WAYNE ADAMS, Sec.

Kind Words

"AS LONG AS I AM ABLE TO READ."

I wish you to continue to send GLEANINGS until further notice, or as long as I am able to read Mr. A. I. Root's excellent Home Talks. I first began to be interested in them as long ago as 1879.

Chicago, Ill., May 17.

R. R. MCGILL.

SOME KIND WORDS FROM A NEAR RELATIVE OF ABRAHAM LINCOLN.

Mr. A. I. Root:—I have often wanted to write to you. Back in the 70's I read of you, and, strange to say, your apiary was the first I ever saw a picture of. Now to the point:

In GLEANINGS for January 1, page 41, you give some very good advice; and now I want to give you grandmother (Lincoln) Bowman's prescription for attaining great age. She says, "Have a purpose in life. Have something to keep yourself occupied at. Never worry nor let anything make you weary. When we find that anything is making us weary, we should stop at once—pick up a paper or book, and read awhile; then we shall feel fresh, and can go right at that work again. My grandmother was 88 years old in October, and works almost every day. She is very spry for her age; and, by the way, she is a first cousin of President Abraham Lincoln. Her great grandfather was killed from ambush by Indians not far from Louisville, Kentucky. He once owned the site on which Louisville now stands. His name was Abram Lincoln. He had four sons. But only three are recorded in history. They were Mordecai, Harry, Thomas, and James. Thomas was the grandfather of Abraham, and also of grandma Lincoln (Bowman). Grandma's father's name was James B. Lincoln. So much for the aged people. I love them. I feel the greatest pleasure in listening to them when they tell of their thrilling experience. I am almost 60, and am yet a young man.

Now, brother Root, I will soon open my maple-sugar camp (and I thought you said you had a lip for maple sugar), and I am going to send you some. I was raised to boyhood at Nelsonville, Athens Co., Ohio. I lived there when General Morgan came thru town. Father was then at the front in the 116th Ohio volunteer infantry. Those were days and nights of terror, and I pray the allwise Creator that I may not see the like again.

J. C. SCHAUFLE, M. D.

Colchester, Ill., Feb. 14.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

Beauty PATTERN

Twenty-five Cents for New Subscription to Cleanings Six Months and Premium Pattern

Select any Pattern as premium, sending 25 cents in stamps for a new six-months' subscription to GLEANINGS IN BEE CULTURE. Be sure to give the pattern number and size desired, and the complete address of the new subscriber whose order you send.

Canadian postage, 15c extra;
Foreign postage, 30c extra.
Selling price of Patterns, 10 cents each.

The A. I. Root Company
Medina, Ohio



1632.—Ladies' Apron. Cut in 3 sizes: Small, medium, and large. It requires 5 yards of 36-inch material for a medium size. Price 10 cents.

1658-1659.—Ladies' Costume. Waist 1658 cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Skirt 1659 cut in 6 sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. It requires $7\frac{3}{4}$ yards of 44-inch material for the entire gown for a 36-inch size. This calls for two separate patterns, 10 cents for each pattern.

1650.—Girl's Dress, with or without overblouse. Cut in 4 sizes: 8, 10, 12, and 14 years. It requires $3\frac{1}{2}$ yards of 44-inch material for a 10-year size for the dress with $1\frac{1}{2}$ yards for the overblouse. Price 10 cents.

1652.—Girl's Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. It requires $2\frac{1}{4}$ yards of 44-inch material for a 6-year size. Price, 10 cents.

1636.—Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires 6 yards of 44-inch material for a 36-inch size. The skirt measures about $3\frac{1}{4}$ yards at the foot. Price 10 cents.

1638.—Ladies' House Dress. Cut in 7 sizes: 32, 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $7\frac{1}{4}$ yards of 36-inch material for a 36-inch size. Price 10 cents.

1501.—Ladies' Shirt Waist with convertible collar. Cut in 7 sizes: 32, 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $2\frac{1}{4}$ yards of 40-inch material for a 36-inch size. Price 10 cents.

1644.—Child's Rompers. Cut in 5 sizes: 1, 2, 3, 4, and 5 years. It requires 3 yards of 27-inch material for a four-year size. Price 10 cents.



"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

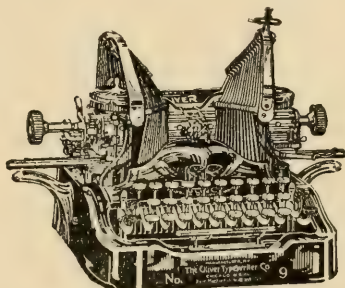
Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

Caution!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hand. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

17 CENTS A DAY! Remember this grand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features. Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

TODAY--Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

Warning!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows that you want the finest model.

Valuable Book to **FREE** "Gleanings" Readers

GOOD HEALTH is fifty years old. We want to make our fifty-first year the biggest in our history, and to give our campaign a good start, we make you this special offer, good for thirty days only. Fill out and mail the coupon on this page and you will become a subscriber to GOOD HEALTH for one year, and we will send you, *absolutely free*, the 140-page book, "Constipation—How to Fight It." After you receive the book and the first number of the magazine you can remit the small amount of \$2 for your subscription or, if you are not satisfied in any way with either the book or the magazine, you can return the book at our expense, we will cancel your subscription and your examination will have cost you nothing.

GOOD HEALTH

is the magazine which teaches you how to fight the causes of disease, improving, protecting and preserving health by the most up-to-date methods. Though strictly a scientific magazine, it is not dull, dry-as-dust, nor technical, but every page is intensely interesting and written in simple, convincing English readily understood by anyone. You cannot afford to miss this opportunity to get the magazine which will help to keep you and every member of your family healthy and happy by sane, sensible methods of health reservation.

Dr. John Harvey Kellogg

who is the Editor-in-Chief, has been for forty years Superintendent of the Battle Creek Sanitarium, the largest institution of its kind in the world, which is recognized by leading medical authorities everywhere as the greatest in existence for teaching the principles of preventive medicine.

Your Health Questions Answered FREE

Every subscriber to GOOD HEALTH has the privilege of asking as many health questions as he wishes of the Specialists who are connected with this magazine. Every one of your questions will be answered immediately by mail. This is a great advantage to busy men and women who have some trouble which they feel it is not necessary to see a doctor about but which can be easily corrected by following the advice of a Specialist. The answer to one single question may enable you to avoid sickness and suffering and save you many dollars.

Send the Coupon Now. Do not put off taking advantage of this opportunity. Fill in and mail the Coupon before you forget it.

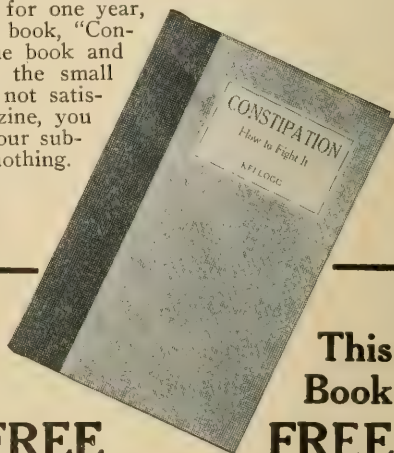
GOOD HEALTH PUBLISHING CO.

1003 Main St. Battle Creek, Mich.

Enter my subscription for one year to GOOD HEALTH and send me FREE the 140-page book, "CONSTIPATION." If I am satisfied I will promptly remit \$2. Otherwise I will return the book within 5 days and you will cancel my subscription.

Name

Address



FREE

**This
Book
FREE**

"Constipation"

How to Fight It

The worst disorder which afflicts humanity, which is most prolific in symptoms—is intestinal inactivity—or constipation. Nearly all chronic ailments, especially disorders of the heart, arteries and kidneys are the result of the absorption of poisons from the intestine, which are produced through the action of germs upon undigested food remnants.

In "Constipation—How to Fight It" Dr. Kellogg tells you how to rid yourself of this affliction—and stay rid of it—by steady attention to daily habits, diet and exercise. The book is the result of Dr. Kellogg's successful treatment of thousands of cases of constipation and resulting ills. Every word is *fact*, not theory. It is a book you cannot afford to be without.

**Here is your opportunity to
get this beneficial book FREE
—but you must be prompt.**

Gleanings in Bee Culture



Photographed by Eugene J. Hall, Oak Park, Ill.

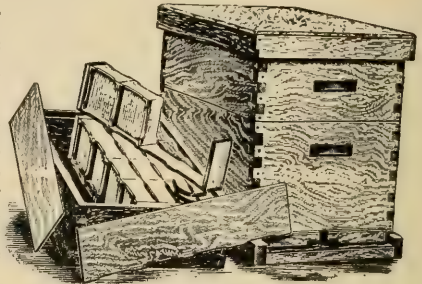
The Double-walled Massie Bee-hive

Surest Protection for Bees---Increased Supply of Honey---the Best Hive for any Climate



T 1. Massie Hive for Comb or Extracted Honey

Furnished in the clearest of lumber, in either Cypress, White Pine, or red-wood; all brood and extracting frames are made from White Pine.



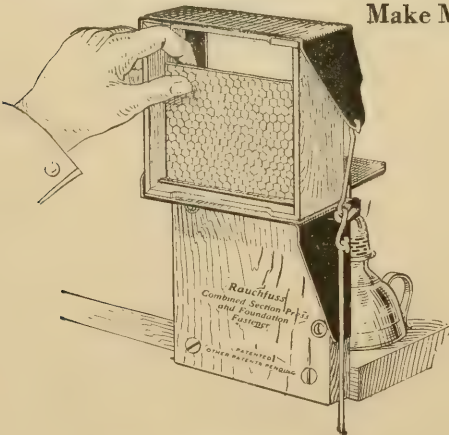
The Dovetailed Hive for Comb Honey

THE VENTILATED BOTTOM admits fresh air into the hive, lessening the chance for swarming, and gives renewed energy to the bees. It is also equipped with a feeder without extra cost. Fifty years in the bee-supply business has shown us that the MASSIE is THE VERY BEST HIVE, and testimonials to this effect are received daily from those who are using this hive.

Why not give us a trial order?
Satisfaction fully guaranteed.
Early Cash Order Discounts..

We are also extensive manufacturers of DOVE-TAILED HIVES and all other apiarian supplies. If you are in the market for supplies be sure to get our prices before buying elsewhere. We will mail our large illustrated catalog and SPECIAL price list to any one upon request.

KRETCHMER MFG. CO., 1000 3d St., Council Bluffs, Ia.



Make More Profit by Reducing Cost of Production

Comb-honey Producers, large or small, find our labor-saving devices save them valuable time during the busy season.

The Rauchfuss Combined Section Press and Foundation-fastener enables the beekeeper to fold sections and put in foundation at one operation. It is guaranteed to do more and better work than any other device on the market. Any child can operate it. Made for $4\frac{1}{4} \times 4\frac{1}{4}$ sections and also for 4×5 sections. Price \$3.00, complete with lamp and treadle, delivered postpaid anywhere in the United States.

The Colorado Honey-producers' Association,
1424 Market St., Denver, Col.

Send for 68-page illustrated catalog of the best bee supplies made.



YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be profitable in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the Blanke Bee Book—send for it today.

Fine Poultry Book also Free

If you keep poultry too, ask us for illustrated poultry book; full of valuable pointers on poultry-raising as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., ST. LOUIS, MO.

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A post card will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13 ½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12 ½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "SW," "L A," "A," should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

KANSAS CITY.—The supply of extracted honey is large, and the demand very light. The supply of comb is not large, and the demand is light. We quote No. 1 white comb, 24 sections per case, \$3.00; No. 2 ditto, \$2.50 to \$2.75; No. 1 amber, \$2.75 to \$3.00; No. 2 ditto, \$2.50 to \$2.75; extracted white, per pound, 7½ to 8; extracted amber, 6 to 7; No. 1 beeswax, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, March 15.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1, per case, \$2.93; No. 2, per case, \$2.70. White extracted, per pound, 8½ to 8¾; light amber, 8 to 8¼; amber, 7 to 8. We pay 25 cts. per pound in cash and 27 cts. per pound in trade for clean yellow beeswax delivered to us here at Denver.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, March 20. Frank Rauchfuss, Mgr.

ALBANY.—The honey market is quiet, with considerable comb honey unsold, and will have to be carried over the season. Stocks of extracted are worked down.

Albany, March 18.

H. R. WRIGHT.

INDIANAPOLIS.—The market for honey has been very encouraging the past week, and extracted honey is moving much better than comb honey; however, the honey business is naturally declining as spring draws near. We are quoting choice white comb at \$3.75 to \$4.00 per case; No. 2 white comb at \$3.50. Extracted of the very best quality is selling at 9½ to 11. For wax we are paying 28 cts. cash or 30 in trade, delivered here.

Indianapolis, March 18. WALTER S. POWDER.

ZANESVILLE.—The market is firm, save that western comb, on account of its tendency to granulate, is being offered at some reduction from standard prices. Best white is selling at \$3.50 to \$4.00 a case, according to condition and quantity. There is about a normal demand for extracted, white bringing 9 to 11; off grades correspondingly less. Producers receive for beeswax 28 cents cash, 30 in trade. Selling prices are largely arbitrary, and vary with quality and quantity.

Zanesville, March 20.

E. W. PEIRCE.

CHICAGO.—During the past three weeks there has been quite a free movement of honey, and stocks have been greatly reduced, as also the prices, because holders have become anxious to realize, and much of the honey has shown a tendency to granulate. Fancy comb honey is held at 15 cts. per lb., and anything off from this grade is from 1 to 5 cts. per lb. less. Extracted honey, white grade, sells at from 7 to 9, according to the kind and quality; but sales have been made mostly at 8, for the clover and basswood, with the amber grades at from 6 to 7. Basswood is selling freely at 30, if clean and of good color.

Chicago, March 18.

R. A. BURNETT & Co.

ST. LOUIS.—We have had very little demand for comb honey lately. Extracted honey is moving a little better with a certain trade, we suppose, on account of the high price of sugar. Stocks of comb honey are quite ample for the little demand, but the market is not overstocked in either extracted honey in barrels or cans, and we believe very little will be carried over into the coming season. We are still getting for No. 1 white comb honey, 4.00 per case; light amber, \$3.25 to \$3.50; amber, \$2.50 to \$2.75; extracted honey in 60-lb. cans, 7 to 8½; amber in barrels, 5½ to 6. Beeswax is firm at 29 for pure; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, March 20.

MATANZAS.—The price of honey in this market, at the present time, is 45 cts. per gallon, including barrel.

Matanzas, Cuba, March 22.

ADOLFO MARZOL.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

**LEWIS' BEEWARE, DADANT'S FOUNDATION,
ROOT'S EXTRACTORS, SMOKERS, ETC.**

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

SAFETY FIRST!

You are always safe in buying Murry's bees and queens. Unexcelled for prolificness, gentleness, and honey-gathering qualities. No disease. Health certificate with each shipment of bees and queens. Three-banded Italians. Golden. Tested queens any time.

Queens	March 1 to May 1			May 1 to Nov. 1		
	1	6	12	1	6	12
Untested	\$1.00	\$ 5.50	\$10.00	\$.75	\$4.00	\$ 7.50
Tested	1.25	6.50	12.00	1.25	6.50	12.00
Select Tested..	2.00	10.00	18.00	1.50	8.00	15.00

Bees by the pound after May 10. Safe arrival guaranteed to any point within six days of Mathis, Texas. Large orders must be placed 30 days in advance of shipment, accompanied by 25 per cent advance payment. This means orders amounting to \$50 and up. If queens are wanted, add price of queen to price of pound package.

Pound packages	1	12	50	100
1-pound package	\$1.50	\$16.00	\$ 65.00	\$127.00
2-pound package	\$2.50	29.50	116.50	230.00

H. D. MURRY, MATHIS, TEXAS.

BEE-LINE QUEENS

Three-banded and Golden Italians from Caraway's Prize Stock. I secured the best stock obtainable; long lived, unexcelled as honey-gatherers, and very gentle. No foul brood nor diseases. Safe arrival and satisfaction guaranteed on all queens in the United States and Canada. State Inspector's Health Certificate with each shipment.

ITALIAN QUEENS				UNTESTED QUEENS BY THE 100:					
Nov. 10 to May 10									
	1	6	12	April	\$75.00				
Untested	\$1.00	\$ 5.50	\$10.00	May	70.00				
Tested	1.25	6.50	12.00	June to November	65.00				
Select Tested	2.00	10.00	18.00	Breeders, fair, each, \$5	Extra Select, each, \$10				
Pound Packages of Bees				1	6	12	25	50	100
1-lb. packages	\$1.50	\$ 8.50	\$16.00	\$33.00	\$ 65.00	\$127.50			
2-lb. packages	2.50	15.00	29.50	58.50	116.00	230.00			
Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.									

Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.

B. M. CARAWAY, MATHIS, TEXAS

You Should Earn \$25 a Colony from Your Bees This Season

This can be accomplished if you have a young prolific queen and a strong colony when the honey-flow arrives. Many beekeepers fail to secure the greatest possibilities from their bees because their colonies are not strengthened and built up early in the season, making it possible for them to take advantage of the honey-flow when it arrives. This should be a good season for clover honey, as weather conditions last year throughout the country were the best for securing a good strong stand of clover we have had for many years.

We now have a large queen-rearing outfit in Florida for the express purpose of supplying you with EARLY QUEENS AND BEES IN PACKAGES. We are breeding from queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. You should have this strain of bees in your yard, and insure the placing of each of your colonies on a paying basis. We have a large supply of queens at this time, but as orders are coming in rapidly, we recommend that you provide for your requirements early.

ISLAND-BRED ITALIAN QUEENS

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ..	3.00	15.00	24.00

Tested Breeding Queens, \$5.00 and \$10.00 each

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus	\$2.00	Three-frame Nuclei	\$4.00	Eight-frame Colony ...	\$ 8.50
Two-frame Nuclei	3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

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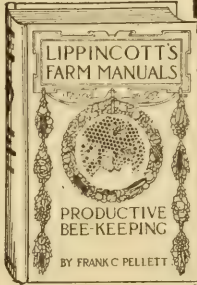
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The A. I. Root Co., Medina, O.

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Editor, E. R. Root, Medina, Ohio; Managing Editor, H. H. Root, Medina, Ohio; Business Manager, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

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(Signed) J. T. CALVERT, Business Manager.

Sworn to and subscribed before me this 23d day of March, 1916.

(Signed) FRANK SPELLMAN,
Notary Public.

[SEAL]
(My commission expires Feb. 17, 1917.)

ON THE BOOKSHELF

Now that so many beekeepers own automobiles, and so large a proportion of the automobiles have electric starting and lighting systems, we should like to call attention to a new book by Victor W. Page, "Starting, Lighting, and Ignition Systems." All automobiles and trucks use electrical ignition, in fact; and since this book gives a very comprehensive review of all the ignition systems in common use it is a valuable addition to the automobilist's library. Like "The Model T Ford Car," by the same author, it is profusely illustrated with specially made drawings and halftone engravings. The book may be obtained from The Norman W. Henley Pub. Co., New York. Price \$1.50.

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These two words should be inseparable in the mind of every person who wants to win success and prosperity.

SAVING money is the first step; the next is to put that money where it will be in absolute SAFETY.

Ample Capital and Surplus, capable management, strict state supervision, enable this bank to afford the highest degree of protection for the funds of its depositors.

We pay 4 per cent on savings, and deposits may be safely sent by mail in the form of draft, check, or registered letters.

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MEDINA, OHIO

A. T. SPITZER, Pres.
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E. B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

A KIND WORD AND SOMETHING MORE.

Mr. A. I. Root:—I feel very well acquainted with you, altho I have never seen you. I appreciate the great work you have done, and are doing in helping to lead the people upward into the "safe and sane atmosphere you enjoy so much. There are so many evils that you can barely do justice to all of them; but I wish you would give a little attention to those "farm" and "home" newspapers that prate so much about their moral influence, and the "elevation" of the farmer and his family, while selling their space for the advertisement of tobacco and cigarette tobacco. I assure you I always feel insulted by those advertisements when I open up a paper that comes into our home pleading "moral influence."

Mantua, O., Feb. 26.

D. B. HUSTED.

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DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

A. L. BOYDEN, Advertising Manager

Issued semi-monthly

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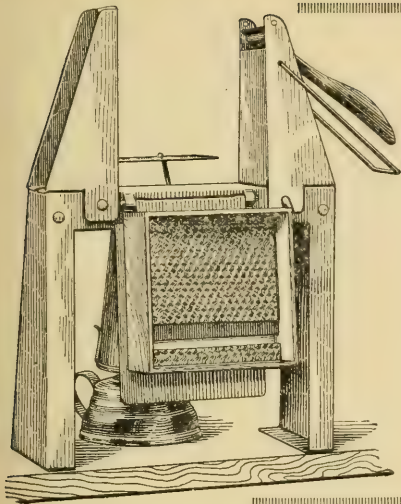
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Woodman's Section-fixer Gold Medal

for the finest comb honey at the recent Michigan fiftieth anniversary convention was won by Floyd Markham, of Ypsilanti, Michigan. He says:

"We have several kinds of machines for folding sections and putting in the starters, but since we got one of your Section Fixers, about two years ago, no other machines for the purpose are used in our shop. It pays to use bottom starters, and your Section Fixer is the only machine that I know of that will do the job at any rate of speed and do it right."

DO YOU KNOW that with this machine you always handle large pieces of foundation, which makes the putting in of bottom starters easy? Special circulars will tell you all about it. Price \$2.75 with lamp and one form block, shipping weight 5 pounds, postage extra.

A. G. WOODMAN COMPANY
GRAND RAPIDS, MICH.

Established 1885



It will pay you to get our 64-page catalog and early-order discount

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The A. I. Root Co's brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Best by test. Prices on request.

"Superior" Foundation

Thousands of pounds ready for prompt shipment. Save 25 to 50 per cent by having your beeswax manufactured in to Weed-process Foundation.

Superior Honey Co., Ogden, Utah
"Everything in bee supplies"

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E. M. Dunkel, Osceola Mills, Pa.

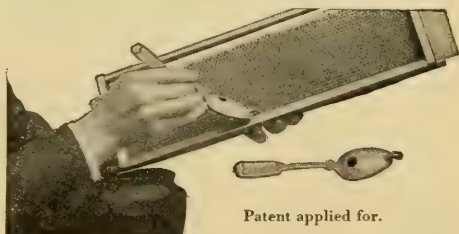
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128 Grand Avenue, Kansas City, Mo.

The Leading House in New England for Beekeepers' Supplies and a Prompt Shipment Promised

I also have some nice grade Vermont Pure Maple Syrup which I can offer at \$1.25 per gallon, f. o. b. my station.

Robert G. Coombs
Guilford, Vt.

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Patent applied for.

Latest and best device invented for fastening foundation securely to the frame or section with a tiny stream of hot wax. Prevents breaking down of foundation with the weight of the bees.

Saves expense, time, and labor.

One filling of the fastener is sufficient to fasten the foundation in five frames and can be done in one-third the time required by any other device.

Price 50 cents, postage prepaid. Satisfaction guaranteed.

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J. P. Martine & Son

Root's Beekeepers' Supplies at Root's Prices

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Preparedness!

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Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---
30 cts. cash, 32 cts. in trade; wax delivered to Lansing.

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

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To order your supplies, and thus
have every thing in readiness for
the spring.

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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

APRIL 1, 1916

NO. 7

EDITORIAL

The Area of Sweet Clover Spreading

WE have already reported how sweet clover is occupying some of the hill country of Kentucky; how land that was good for nothing there is now worth as much as any other farm land, because it will grow sweet clover, honey, pasturage, and hay. What has been taking place in Kentucky is making a start up in the Ozark Mountains. See article by Otis A. Griffith in this issue.

Why Gleanings is Late Again

WE are under contract with a big paper concern which supplies the paper on which GLEANINGS is printed regularly. GLEANINGS is not one of the great magazines, by any means, and yet it takes nearly three tons of paper to get out a single issue. Because of the influence of the great war on the paper industry a carload of paper that should have reached us weeks ago was not shipped until March 24. It is needless to say that we did everything in our power to get paper elsewhere; but under these trying times paper is simply unobtainable on short notice. We hope that our readers will bear with us, for of course matters of this kind are entirely beyond our control.

Prospects for 1916 Honey Crop

PROSPECTS for a large crop of honey the coming season were never brighter. Reports continue to be favorable in California, Colorado, and many parts of the West; and the prospects for clover throuth the United States have not been as good for years. The winter was mild, and there was considerable snow during the latter part of it. So far as we can ascertain, there was little or no winter-killing, and clover honey will be much in evidence next season—that is, provided, of course, we do not get a reversal of last season, and that is a drought. If it should be very dry in the late spring or early summer, the clover that is now so

very abundant will be of little or no use to the beekeeper.

Death of One of the Gleanings Office Force

WE are more than sorry to be obliged to record the death of Miss Bessie Templeton, who for more than ten years has been at the head of our subscription department. There is an endless amount of work, correcting and changing addresses, and it is not a small task to see that each subscriber of GLEANINGS receives his copy regularly. Miss Templeton has done this work most faithfully and well.

For a time there is bound to be some delay in entering new names and making corrections necessitated by changes of addresses. We hope our subscribers will be patient with us until this work can be reorganized once more.

Wintering Throuth the United States

IT is a little early yet; but so far the average of the reports regarding wintering are favorable. But one man in Montana says the losses will be the severest in years. Another, from Ontario, Canada, says he is fearful that they will be very heavy. By consulting Weather Bureau maps we find that it has been much colder relatively in Ontario than in that portion of our country south of the Great Lakes. Indeed, up till March the winter was very mild. But March was a little cold, and it is probable that there will be some losses reported yet.

Our own bees, so far as examined (and we have gone over about 300), especially those in the big quadruple cases, have wintered with a loss of 7. None died in the big winter cases except one, and that starved; and not only that, they are in splendid condition—the best we have known in years. This is gratifying. We put the bees in winter quarters very late last fall. The home yard of 174 shows no dysentery and almost no spotting of the hives.

The Distance Bees Fly, Again

IN this issue, in his regular department, Mr. J. L. Byer evidently had not read what we said about the flight of bees, page 150, Feb. 15, or he would have seen that he was more nearly in accord with our own views than his statement implied. He finds that there is a condition in a level stretch of country under which bees will fly further than $3\frac{1}{2}$ miles. So have we. He cites one year (1913) when a dearth visited the section in which the apiary was located. Nearly three miles away from the apiary was a strip along a river-bank where alsike clover kept in bloom. The bees went to this strip, and some of them went as far as five miles away. By turning to page 150 it will be seen, in referring to a place where bees ordinarily would not fly more than three-fourths of a mile, we said, "When there is no natural nectar which the bees can gather less than three to five miles away, it is not an uncommon thing for them to fly that far. But they do not always do so."

Testing the Soil for Sweet Clover, and Something about the Largest Grower of it in the United States

IN this issue, page 284, appears an article from Mr. Frank Coverdale, of Delmar, Iowa, on how to test soil—in short, how to make a sure catch of a seeding of sweet clover. Mr. Coverdale is probably the best authority on this plant in the United States; and when the farmers in the country begin to wake up to the value of this wonderful legume as a foliage plant, and want to know something more about it, they will be asking for Frank Coverdale at farmers' institutes all over the United States.

We would suggest that beekeepers and farmers make a general request that Mr. Coverdale be employed next winter to speak at farmers' institutes on how to grow sweet clover. The first state that gets him will be fortunate. Any one who has heard him talk will be convinced that he knows sweet clover from A to Z, for he is the largest grower of it, probably, in the United States.

Summer Beekeeping Course of the Iowa State College

A COURSE in beekeeping is to be offered during the first six weeks of the summer session at the Iowa State College. This course will consist of three lectures and recitations a week, and three periods of practical work a week for the six weeks.

The course will not occupy all the students' time, and they will have opportunity to take other studies that may be related to apiculture in other departments of the college.

This course will fill a long-felt want among the beekeepers of Iowa as well as those interested in beekeeping. It is offered in addition to the new four-year course in apiculture which will be offered for the first time at the beginning of the next college year in September, 1916.

The Iowa State College is to be commended for the recognition it has given to the value of teaching apiculture, and the opportunity it is offering to students who may be interested in the subject of beekeeping. It will offer an opportunity for school-teachers and beginners to obtain information for successful beekeeping, and it will offer to beekeepers the chance to learn the latest and best methods as well as to gain information they could seldom gain from practical beekeeping.

Information in regard to this course may be had by writing to the Director of the Summer Session, Iowa State College, Ames, Iowa.

The Lament of Job, Again; or the Silver Lining to the European Foul-brood Situation

TWO articles in this issue will give our friend Job (Holtermann) a few crumbs of comfort. We refer to one by Geo. H. Rea, on page 272, and the other by L. A. P. Stone, page 274. Mr. Rea's method is somewhat drastic in that it involves the destruction of combs or melting them up. According to most of the evidence in hand it appears it is not necessary to do this for European foul brood, altho possibly such drastic means would have to be applied provided *every* trace of the disease is to be wiped out as Mr. Holtermann stipulates.

The article by Mr. Stone promises relief by simply using Dr. Miller's method of cure, dequeening for ten days, and using vigorous Italian stock, and saving the combs. In fact, there are so many reports endorsing Dr. Miller's treatment for European foul brood we really believe that the disease can be handled without very much difficulty provided a good strain of Italians can be secured. In any case, neither Mr. Holtermann nor anybody else need fear that European foul brood will cut down the honey crop.

The Miller treatment, boiled down in a nutshell, quoting from Mr. Stone, is very simple. He covers it in one sentence; name-

ly, "Make the infected colony queenless, and unite as many together as will make one strong colony; and then introduce choice queens after a ten-day period; but first make sure of destroying all queen-cells started by the colonies." He commences treatment at the beginning of the clover harvest.

Another crumb of comfort for Mr. Holtermann is that European foul brood will eliminate all the black colonies and the old-fashioned beekeepers who do not and will not keep up with the times. This will give him a larger field for operations, and, of course, more honey per colony, as there will not be the overstocking as a result of old-time neighbors keeping a few bees and cutting prices. Cheer up, Bro. Holtermann! Don't you see the silver lining in the skies?

The Beekeepers vs. the Smelting Company in Canada Again

On page 215 we stated that this case had been continued to some time in May. We are now advised that it will come off May 17. It is to be presumed, of course, that the company against whom the action is taken will leave no stone unturned to prove that the gases from their plant or plants are not the cause of the death of the bees in that locality. At all events we are informed that they are taking testimony in Utah, Washington, and California.

It will be remembered that the smelter people in a similar case in Salt Lake Valley, Utah, are said to have settled with the beekeepers in the sum of \$60,000. Of course the attorneys for the beemen will use this case as a precedent.

The beekeepers interested in the case are desirous of hearing from other beekeepers in the United States, particularly the Salt Lake Valley, who can give any information regarding this settlement. If they have anything to offer they are advised to correspond at once with Lewis Minor, Smithville, Ontario.

Regarding the case, Mr. Minor writes:

The smelter people evidently intend putting us in a position to state whether the bees get the poison from the flowers when they ask for particulars, or how else do they come in contact with the gas from their plant? We contend that the bees are killed by flying in contact with their gases in search of honey.

The first summer the smelter was operating, and all the bees were yet in the district, there were over 1000 colonies more than I thought there were, until I looked them all up this winter. Those closest to the smelter died as soon as they began work-

ing in the spring. Further away they lived until the season was over. As soon as the honey quit they likewise were all dead in two weeks. There seems to be something in the gases that attracts bees.

Since the first summer there have been only a few colonies in the place, only what swarms came in from the outside, and what we have taken in for a test. Their flight is always in the direction of the smelter when they are dying.

Lewis Minor.

Smithville, Ont., Can., March 11.

Slightly Exaggerated, Again

THE average reporter, especially if he be a "cub" reporter, in writing about bees, often gets the facts horribly twisted. There has been going the rounds of the press from Los Angeles to New York, and from Portland to Jacksonville, a story to the effect that "E. R. Root, the bee expert," while giving a lecture on bees, was "stung on the mouth" by one of his "untrained bees," and that his "mouth swelled so horribly" that the lecture was "brought to an abrupt close." With almost every newspaper story there is almost always a scintilla of truth; so in this case. While giving a demonstration before the students of the short agricultural course of the Ohio State University, a bee did sting us on the mouth. We brushed it off, scratched out the sting, and went on. The incident was noted by a student who sat in the front seat, and he happened to be a cub reporter for one of the afternoon papers.

The facts are, there was no swelling beyond a slight welt, and we continued our talk and demonstration until the lecture closed. The aforesaid cub reporter added to the other statement that the bees stung Mr. Root and the audience so that there was a "grand rush for the door."

After the lecture had closed, and perhaps two-thirds of the audience were gone, a bunch of boys jammed around the platform and tried to get a taste of granulated honey or honey butter. The jam was so tight that some of the outsiders could not get inside, and one of the outsiders picked up our hat, which contained about a pint of bees, and threw the bees all over the other boys that were fast absorbing the butter. They immediately scattered and a few rushed for the door; but no one was stung. After the laugh was over, some of the outsiders got a taste of granulated honey.

At first we thought we would pay no attention to this oft-repeated yarn; but it is being copied everywhere, in a dozen different versions, presumably as a good joke on the aforesaid "bee expert."

One of our newspaper friends made the remark that this write-up with its "screaming head lines" was worth to the Root Co. thousands of dollars, because the Root Company, Mr. Root in particular, their Airline honey, and bee supplies had been heralded all over the country thru millions of papers. Posibly our newspaper man was right; but this poor little "bee expert" can't help feeling a little humiliated to have it told about him when it wasn't so that he was put out of business by a single bee in one of his recent lectures before the university students of a state university. Josh Billings used to say, "What's the use of knowin' so much when so much you know ain't so?" Some of these cub reporters ought to absorb a little of this truth. But then the truth wouldn't have made a "good story."

=====

The National Convention at Chicago

THE secretary, Mr. F. Eric Millen, page 277 of this issue, gives an official statement of the policies of the new National as recommended and adopted by the delegates at the last meeting in Chicago. As Mr. Millen says, the thing to do is to forget the past, wash the slate clean, and begin all over with the new men who have been in no way identified with the past. If we understand it, no blame is attached to individuals; but the general opinion seemed to be that a single organization national in its scope cannot perform a dual function—educational, commercial, or both—at the same time. The new organization will attempt to do only one thing, work along educational and social lines.

The editor of GLEANINGS during late years has repeatedly refused to take any part in any discussion relative to the policies of the National. In Cincinnati, when he was asked to express even an opinion, he respectfully declined, saying that he did not believe that any bee-journal, supply dealer, or supply manufacturer had any business to dictate or even suggest what any beekeepers' society, national or local, should do; that each organization should be absolutely independent of any commercial interests outside of the mere business of honey production. Any other policy would be fraught with danger.

SOME THINGS THAT WERE SAID AND DONE IN CHICAGO.

We were not present at all the sessions, and therefore can give only a limited review of the proceedings. After the business of the morning had been transacted, the actual discussions began on the afternoon

of the 22d in one of the assembly rooms of the Sherman House. Mr. G. W. Williams, editor of the *Booster*, and secretary of the United Honey Producers of America, delivered an address on teaching the uses of honey in our public schools. Domestic science, he said, was being taken up in all of our best schools; the opportunity was now ripe for the beekeepers of the country to carry the subject of beekeeping and the uses of honey as a food direct to the domestic-science teachers as never before. He found that the various boards were receptive—glad to take up the matter if properly presented. Beekeepers are distributed all over the United States, and it would be an easy matter for each beekeeper to explain the uses of honey by handing out booklets, giving honey recipes to the domestic-science teachers. He closed by giving a statement of the food value of honey as compared with other foods, especially cane sugar. He recommended that these comparisons be presented to the domestic-science teachers and they in turn to the pupils.

Mr. Williams was followed by Mr. E. H. Bruner, of Chicago, on the uses of honey in cooking. There were two important things to be considered—first, a fine quality of honey, and, second, to get the housewife to understand the value of honey as a food. There was no use in getting her interested unless she could be supplied at any time with good honey. The use of honey in baking should be brought to her attention. There are thousands who would eat honey if they could get it and know of it. The business of getting honey into our homes has only just started. It was important now he said to set people to thinking about honey. Let them understand that it can be used in ninety places where sugar is now used. Show them, for example, that honey is good to use on grapefruit and bananas; fine on cold cereals, and excellent in lemonade. He deprecated the policy of selling honey in a retail way at wholesale prices, or cutting prices, as many beekeepers were doing, in order to "introduce the sale of it." Whenever low prices were established it would be difficult to get them up again. The whole policy of cutting prices to the consumer direct was wrong. Our grocers were our best friends. If we protect them, they would protect us.

Mr. R. M. Spencer delivered an address on selling and advertising ripe honey. He recommended that all honey sold should be entirely sealed before being extracted. Such honey would bring good prices, whereas the half-ripened article would bring a low price. He asked for all his honey thoroly ripened,

8 cents, while a neighbor sold an inferior article for 5 cents, as that was all he could get. Honey could be sold by parcel post in suitable containers. He urged a national campaign of advertising. If a fund were raised by assessing only ten cents per hive an enormous amount of money could be raised for advertising. It would create a demand and sale for honey. If beekeepers could only get together on a proposition of this kind it would mean much, because in union there is strength.

The next forenoon we were not present at the sessions; but we were told that Dr. Miller, among others, gave a little talk on olden days. Dr. E. F. Phillips, in response, paid him and some others of the old patriarchs some very high encomiums. We regret that we did not hear this; but apparently all the beekeepers were glad to welcome and see Dr. Miller and his assistant, Miss Emma Wilson. Dr. Miller has arrived at the age of nearly 85. He, with Mr. Wilcox, and Mr. M. M. Baldridge, St. Charles, Ill., carried us back to the olden days. The latter, between sessions, gave us some very interesting history of the Langstroth hive and the introduction of Italian bees into this country. This, doubtless, will be made public some day.

Dr. Phillips, of the Bureau of Entomology, Washington, D. C., in the afternoon delivered a stereopticon address. He showed a number of interesting pictures which he and his associates took; and among the number none called forth more interest than beekeeping in the South Atlantic states. There were more bees and beekeepers there, he said, than anywhere else in the United States. But the trouble was, bees were blacks and kept by the old primitive methods in box hives. He went on to describe some of the superstitions that were rife among some of those plain mountain folks, the purest of the pure Anglo-Saxons, many of whom had never been away from home more than a few miles. Nearly all of them kept a few bees, and they kept them just as their forefathers did three centuries ago. If a death occurred in the family, the bees would have to be "informed" of it. On Washington's birthday their colonies have to be moved an inch or two or else calamity will follow. When asked how many gums they have, they don't know. If the visitor proceeds to count—"No! you mustn't count them, for that would bring trouble. There are about so many." 'Nough said.

They know nothing of hiving prime swarms back on the old stand, thus retaining the flying bees of the parent colony. The swarms are hived in another gum

placed anywhere, and the parent colony is allowed to swarm itself out of existence. The moth miller is rampant over all that part of the country. It finds these parent colonies, second and third swarms, an easy prey. Practically no returns are received from anything except the prime swarm. The rest die off, either during the winter or are despoiled by the moth miller, or both. If disease should ever get into this Southland, beekeeping would be entirely wiped out because there are nothing but black bees there. Dr. Phillips hoped that some day the state extension workers would be able to instruct these people along the lines of modern methods.

Subsequently in the proceedings a resolution was introduced urging Congress to increase the appropriation now expended for bee culture by \$35,000, making a total of \$50,000 all told. This resolution was subsequently submitted to the Committee on Agricultural Appropriations in Washington with the result that \$5000 increase was granted by the Committee. The whole Agricultural Bill has been temporarily held up in favor of the Military Bill. In the mean time beekeepers should write their congressmen urging their support of the increased appropriation for apiculture. After the Agricultural Bill passes the House it will go before the Senate, with the probability of adoption by that body. Beekeepers should write the senators also. If adopted this will make a total appropriation of \$20,000. The recommendation was made that whatever increase was granted, if any, should be used by the Bureau of Entomology to send experts down into this Southland to instruct those simple mountain folks on how to keep bees in the modern way; how to know bee diseases and how to control them if they ever get a start. It goes without saying that Dr. Phillips will do his part in the Bureau.

Dr. Phillips was followed by Mr. F. G. Snooks, freight claim adjuster in the traffic department of the Erie Railway Co. Mr. Snooks' address was one of the most useful that has been given, provided that the honey-producers of the country will heed his suggestions. We obtained from Mr. Snooks a digest of his address, which we are glad to present here.

Beekeepers and Railroads

I am a beekeeper. Bees are a source of my enjoyment. I am connected with a railroad which is the means of my livelihood, and I should like to call your attention to some interests in common, not as a railroad employee, but as a beekeeper.

First, let us consider the railroads. Railroads have been in the limelight of legisla-

tion for a considerable length of time, not as dictators, but as the target for every politician who thinks his one mission in life is to secure for the people something at the expense of transportation companies.

While we admit that some of this legislation has been beneficial to all concerned, still, if continued, the pendulum will swing past its arc of usefulness and destroy what good has been accomplished. The failure at the present time to sell railroad bonds at par is withholding the placing of large orders for new freight cars.

Beekeepers are interested, with the public at large, in well-maintained and bountiful passenger service, fast freight schedules, fine railroad depots and freight houses, enlargement of terminals to prevent congestion in an adequate supply of fine rolling stock, and, in fact, everything that makes a railroad.

A recent new venture on the part of railroads is the organization of bureaus for the prevention of loss and damage claims. This is of vital importance to all shippers. The men handling this matter are chosen for their long terms of commendable service, and it is their duty to see the packages accepted for transportation are strong enough to withstand ordinary handling; that placards on packages requiring special handling are observed, such as "Comb Honey," "Very Fragile," "Handle with Care," "Glass," "This side up," "Inflammable," "Explosive," etc.; to see that large transfers and small stations do not delay, improperly handle, nor poorly stow any freight. Switching in yards, also freight trains, are watched both day and night.

These bureaus not only decrease the loss thru claims, but the prevention of every claim is the elimination of a complaint from a customer to a shipper. Customers have frequently been known to cancel orders due to continued claims resulting from poor packages.

Railroads are frequently rebuked for declining to accept insecure packages at the owners' risk. This is wrong. Take, for instance, an insecure can of extracted honey. All the releases a shipper could execute would not repay a carrier for the loss it would sustain by damage to silk or other high-grade freight loaded in the same car, due to the leaky can.

The successful shipping of comb honey begins with its production. The foundation should first be securely fastened to the sections. The comb honey should then be placed in factory-made shipping-cases (notice I emphasized factory). First, factory-made shipping-cases are the exact size, thus avoiding any play. Furthermore, they are usually equipped with corrugated cushions which absorb much of the shock of transportation without damage to contents.

The shipping-cases should then be placed in carriers with the sections all running the same direction. That is, when the package is finally placed in the car all the sections in

the package will be parallel to the rails of the track.

The carriers should be constructed of sound lumber, secured with cement-coated nails. I much prefer a box to a crate, one which holds from 175 to 200 lbs. The carrier should be cushioned on the bottom with about three inches of straw, and provided at the top with pieces which extend beyond the crate in such a manner as to form handles with which to carry the package.

Stencil your carriers with a mixture of lampblack and oil in the following manner:

From	Stingless Apiary, Beeville, Texas.
To	Mr. Eatmore, Wellsville, N. Y.

Do not use tags written in ink and fastened on with tacks, as ink blurs, and tags are very easily torn off. Placard your packages "Comb honey, very fragile." There are good advertising features in this method of marking.

For carloads, anticipate your wants. See that suitable cars are used—those free from noxious odors, leaky roofs, and journal-boxes improperly packed. Avoid shipping comb honey in extremely cold weather if possible, and avoid shipping small packages of comb honey.

Do not use old rusty second-hand cans for extracted honey.

Do not load carloads of bees without first ascertaining the time of your departure.

Do not expect trainmen to place your car free from the smoke and gas of the engine unless you request it. They do not understand the peculiarities of bees.

On less than carload shipments patronize railroads that make long haul thru package cars. This avoids unnecessary handling.

Patronize railroads that pay legitimate claims promptly.

Patronize railroads that advertise schedules and maintain them.

File your bills of lading and expense bills. They are valuable, and should not be destroyed.

Remember, continued claims on the same commodity have a tendency to increase the rate.

Tell the railroads your trouble; ask their help; they are your friends.

F. C. Snook,
Inspector for Freight Claim Dept. Erie R. R.

To be continued

A Correction

IN our last issue, page 217, we say that Dr. Kohn was elected vice-president of the National. The name should be W. M. Copenhagen, of Helena, Mont.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



FRED W. MUTH says: "If you scratch the tin first, flour paste will stick as good as any; or if you put sugar in paste you need not scratch the tin. We do it."

WHEN considering the pros and cons as to house-apiaries, don't forget one very important point: The man with a house-apiry loses the health-giving advantage of an outdoor life.

D. W. MILLAR has mailed me a sample of campanilla honey so clear, so excellent in flavor, and so daintily put up, that there ought to be a law against allowing such honey to enter from Cuba to interfere with my trade.

J. E. CRANE is learning. He says, p. 145, "I found what I did not know before, that bees will not build up on sugar syrup as well as on honey." Good! I confess that, until lately, I had not realized—perhaps don't fully realize yet—how much better honey is than sugar for man or bee.

"DON'T be a kicker!" That's another lesson, Huber, you might have drawn from that mouse-and-trap affair, p. 244. Some people are always ready to kick, no matter what happens, only making more trouble for themselves and others. If that mouse, instead of kicking, had lain still and quietly died when caught by the one trap, it would not need to have been killed the second time by the other trap. After all, why was any one so careless as to set two traps so close together?

VERY interesting is the discussion of bees drifting when set on their summer stands, p. 235, by G. C. Greiner. Years ago I had trouble galore from drifting. A hive at one end would have the bees for three colonies, and too often the queen would be killed—nowadays no trouble at all. I can't be sworn just why, but I'll tell you just how we do. On a bright morning when bees can fly they are all brought out of the cellar as rapidly as possible; and before the bees have time to fly, each entrance is closed to one square inch or less. I *think* that small entrance is the secret of no drifting.

AN OHIO correspondent has abundant dandelion and fruit-bloom, and then an interval of two weeks before clover. He intends to take from a colony the queen with two or three brood, and when the queenless colony has ripe cells to divide it into nuclei which shall grow into full colonies. He asks

whether to begin operations in the early or the clover flow. The earlier he begins, the longer time there is to build up. But unless the colony is very strong in dandelion, better wait for the stronger colony in clover. Moreover, in localities like mine, where bees rarely swarm before clover, the chances are that early queens will be poor, so in such places I'd wait for clover. But where swarming is mostly before clover, I'd begin just before that swarming.

WHAT is the best cellar temperature for bees? We don't know as much about it as we did 25 years ago—at least we're not so well agreed. At that time all agreed that the orthodox thing was 45 degrees; now we're divided in opinion. George H. Rea, p. 208, says 43. I think Dr. Phillips favors 50. Asked why it was that 45 was so generally held years ago, he thought it was because cellars generally happened to be that temperature. Formerly I had good wintering at 45; now my bees do well at 50. No doubt bees may winter fairly well at different degrees, yet no doubt there is some one degree that is *best*. [Our best success in wintering has been with the higher temperatures; but with them there must be increased ventilation, or the bees will become very uneasy, and fly out on the cellar bottom and die—at least that has been our own experience. Our temperatures ranged from 50 to 55, some of the time going as high as 65; but when we secured fresh air by means of an electric fan going into the room the bees did not appear to be uneasy.]

One reason why 45 has been considered the orthodox temperature is because, years ago, when that dictum was put out, comparatively little attention was paid to ventilation. Prior to that time, sub-earth ventilators were recommended; and then it was concluded these were of no use because they carried in too much dampness and cold air. Then later the slogan was no ventilation except what percolated through the cellar walls, doors, and windows; and the advice was given to close these up as tightly as possible; and, strange enough, there was some fair wintering; but when the temperature hovered around 42 to 45, and a closed cellar, nothing was thought of two or three inches of dead bees on the cellar floor, and weak colonies in the spring. To-day we can not regard it as good wintering when the bees fly out in large numbers and die on the cellar bottom an inch or so deep; and the main cause of this is not bad food but bad ventilation.—ED.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Apparently we have all wintered satisfactorily here in Tennessee, tho at this writing the hives in our own yard have not yet been opened, as we prefer to wait till fruit-bloom. Last year the fruit-bloom came April 7, unusually late; today, March 13, it looks as tho another day or two would see both the earlier plum and peach trees in full bloom. Yet I am compelled to admit they have looked like this for nearly three weeks, the result of unusually warm weather in February followed by a cold blustery March.

What a season it has been, anyway! Here came Spring dropping purple violets in our neighbor's yard and golden daffodils in ours, filling us all with the delight of her coming and the hope of her staying; and then while she was coaxing the tight fisty little peach-buds to show their crumpled pink, quite suddenly out of the north old Winter came roistering back. He pelted us with a wonderful storm, with big north winds and hours of swirling snow. And poor little Spring, for all her singing as she came, had merely "walked right in and turned around and walked right out again!" Can you blame her, with snow on her daffodils? She had a deal of tidying-up to do when she finally did come back, for Winter, careless old fellow that he is, left many a mile of slush puddling up our roads, and many a brave-hearted blossom dead by our fences. But she has done it well, and now once more there are violets like bits of sky in our neighbor's yard, and daffodils like stars in a corner of our own.

It was during those early warm days in February that there were so many bees flying low around our yard, some of them alighting on the ground, especially on bare worn places fifty feet or more from the hives, seemingly drinking the moisture from the damp earth, while others were slipping into the little brooder-coops of the baby

chicks, apparently after bran. I put out water, which promptly became popular, and then, lacking a better kind, some plain graham flour, which also drew some attention. I watched them for a long time one warm Sunday afternoon, alighting on the shallow edge of the flour for a busy instant or two, then hovering just over it while brushing the flour back to the carrier legs, and finally going off loaded with big light-colored balls in their pollen-baskets.

FOR BEGINNERS.

When spring is quite surely here, and the weather pretty well settled, you will

want to look thru all your colonies to see the conditions in each hive. You will make sure of stores. If they are in need, give them food, a comb or two of sealed honey if you have it—sugar syrup from a pan in the super, if you have not. You will notice now brood-rearing is coming on. If they are crowded, give them room by removing a comb or two of honey from the sides or raising it to the super. The queen must have plenty of room to lay, but do not spread what brood she has. You will make sure of the queens themselves. Of course, where you find eggs or young brood, you will know your colony has a queen,

even tho you don't happen to see her.

However, when you get ready to clip your queens you must hunt for each one, thru frame after frame if necessary to find her—even tho your record shows you clipped last year. It may easily happen you will find an unclipped queen where you left a clipped one—the bees having superseded the other without either your advice or knowledge. As to the actual clipping itself, it may be done in several ways, but is always a matter of great delicacy and care. The method probably generally used is to pick up the queen by the wings, with the right hand; then with the thumb and first finger of the left hand take hold of her body—you will see by trying that it works out that the thumb goes under the

Bees in April

Drifting down the ages
On the wings of time,
April dawn comes rippling in
Like a little rhyme,
Rippling in and dancing
With her daffodils,
Dropping unexpected things
Over startled hills.

April with your treasures,
Have you ever guessed
Which of all your graceful gifts
My heart loves the best?
Not your lilting birdsong,
Not your swelling trees,
Not your brimming buttercups—
Bees, dear! Bees!

How you set them humming!
When their gauzy wings
Flash across my world, ah! then
My whole world sings.

thorax and the finger above, which is as it should be. The right hand is now free to do the clipping. Take off both wings from one side—not too close, however. The abdomen should not be touched at all; and the less handling the better, as sometimes the bees ball the queen when she is returned to them with the new strange taint. Be careful, too, to return her gently, avoiding dropping her, as she is easily injured.

The following extract from a letter received last year from Mr. O. J. Jones, of Urbana, Ohio, is interesting in this connection:

"Pick the queen up by the wings with the index finger and thumb of the right hand. Place her on the index finger of the left hand (end of finger); she will take hold with her feet. Place your thumb on the three feet next to it. Take the scissors in the right hand and clip one of the large wings. I always clip the right one. Place her back on the frame from which she was taken, not on the tops of the frames yet in the hive. (I have lost some valuable queens by following book directions and placing her on top of frames on account of her running in frightened; or the bees, detecting a foreign odor, ball their own queen.) By placing her on the frame yet out, if there is any excitement leave her out until she resumes her normal dignity. I have clipped hundreds of queens, and never taken a queen in my hands except by the feet and wings."

Aside from doing these necessary things, don't open the hives and fuss around with them very much. To be sure, that is an excellent way to observe, and to add to your familiarity and ease and experience, and most of us started in that over-zealous fashion, but it is rather hard on the bees.

* * *

We have known all along that this particular neighborhood of ours is not very good bee country, being too thickly built up. There are some stretches of commons, to be sure, but not very large, and constantly diminishing at that, and with too many cows taking advantage of the free pasturage. There are a few low outlying hills with some slight growth of locust; but to reach pasturage of any extent our bees would have to fly two and a half or three miles. Now, if Prof. Baldwin and the editor are going to limit their flight to a mile or even a mile and a half, we are even more restricted than we thought, and we can scarcely expect the bees to accomplish very marvelous things for us.

In this connection I remember that Mr. J. C. Parks, of Scottsboro, Alabama, said

in a letter this past summer that his experience shows the eight-frame shallow supers superior for a poor locality. His bees are located where there is neither clover, basswood, nor buckwheat—the main flow being from tupelo, poplar, locust, persimmon, and sourwood. It is not, he says, a good honey section. Well, last year he contracted a few colonies to eight frames, and these averaged 60 pounds of extracted honey better than the colonies in ten frames. Mr. Parks wisely declines to draw too positive a deduction from this experience, but is sufficiently impressed to make the experiment next year on a larger scale. All of his supers, by the way, are the shallow variety, but most of them ten frames. I know this past season we wished several times that we had shallow supers, for it was a poor year, and hence many of the large frames were only partly filled.

Another unfortunate thing about our particular neighborhood is that there are so many little apiaries scattered through it. You see this used to be a "half-in-the-country-half-in-the-town" section; and tho the town keeps elbowing the country further and further out, the simple countrylike ways are still in vogue. Nearly every family has its own little home, its own little garden, and a few hens. Then a goodly number keep a cow, some of them a pig or two, and still others a flock of geese or ducks. The ducks and geese and the pigs and cows have the run of the commons—likewise the streets! so it is not strange that bees are often added to other interests.

Of course the worst feature of so many such small yards is the carelessness and ignorance often shown in their handling, and the consequent danger of disease getting a hold. Noticing one row of hives while on a ramble walk one day last week we wandered into the yard to introduce ourselves and chat beetalk a bit. We learned that right there, within fifteen minutes' walk of our own home, they had had foul-brood troubles, but which kind or when, or what was done about it, we did not ask, being such utter strangers. But I shivered all the way home.

Then a few days later came GLEANINGS with Mr. Crane's encouraging article, "European Foul Brood not Formidable to the Efficient," page 985, Dec. 1, whereupon I gritted my teeth and made big plans for a thoroly efficient future; for if just plain efficiency or practical proficiency or any other ish-eney can strengthen our defense, there should be no deficiency, but adequate sufficiency, of genuine efficiency — that's simple common sense.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The warm open spring will be beneficial in reducing paralysis to a minimum.

My bees are in fully 25 per cent better condition than at this time, March 13, last year. Wherever an old queen has been carried over, the results are not so satisfactory.

The orange will bloom fully two weeks earlier than last season if the weather continues warm. The sage is little if any ahead of last season's growth. Should good weather continue it may cause a prolonged season, the sage following the orange rather than blooming at the same time.

Word has just reached me that Prof. A. J. Cook has been forced to resign as State Horticultural Commissioner on account of ill health. It is my sincere wish that he will not be incapacitated any length of time. His value to the beekeepers alone has been worth while, yet beekeeping has been only a side issue.

The *Western Honeybee* for March contains the announcement that a New York concern will loan money on California honey if stored in a warehouse and guaranteed by a state certificate. I have never had the least trouble in getting a loan on any honey I had stored in a warehouse where the warehouse receipt was presented at my local bank. In fact, the local banks are always ready to take honey for security on a loan. I should very much prefer to get my loan at home, even if I have to pay a little more for the use of it. If you treat your local banker properly you will be much more likely to get a loan in time of need when you have no honey to secure it.

Editor Bixby, in the *Western Honeybee* for March, page 53, says: "A. I. Root, in a recent number of *GLEANINGS*, inspired by notes of Editor Chadwick, waxes eloquent over sweet clover in the orange groves of southern California." Mr. Bixby, kindly read that matter over again, p. 130, Feb. 1. See if the questionable matter was not credited as a clipping from the Redlands *Daily Facts*. The words "orange groves of southern California" do not appear at all. While you are at it, observe the words "sweet clover" are taken from the clip-

ping, also that the word *honey* does not appear any place therein. The question of honey-producing was not the point at issue. The item appeared in Mr. Root's High-pressure Gardening department. The laugh is on you, Bro. Bixby.

Mr. P. G. Snyder, of Aibonito, P. R., wrote asking me if I knew of any bulletin on the value of bees as pollinating agents for citrus fruit. As I had no data on the subject I began a search on that line. But the very first round I was shocked by the following:

I am unable to give you the definite information on this subject that is very much needed. The following notes may be of some interest in this connection:

The navel orange, which is so commonly grown in California, is, as you know, practically sterile, and develops no pollen or seeds. I have never seen a perfect grain of pollen developed in a navel flower. Again, we know by careful experiments that the navel develops fruits when the flowers are bagged and no pollination is possible. Also, the pistil of the navel is very abnormal, the pollen-conducting tubes, thru which the pollen-tubes grow normally, being closed at the top, which does not allow the entrance of the pollen-tubes as in the case of the normal orange.

All of these facts would seem to indicate that pollination in the case of the navel, by either the honey-bee or any other insect, would be of no particular value. To determine this matter finally, however, would require experiments in which bees were used on navel trees in comparison with other trees which were protected, giving as nearly natural conditions as possible. Such experiments have not yet been carried out.

There is more evidence in favor of bees being necessary and desirable in connection with the other varieties of citrus fruits, but here again we have no definite experiments on which to base a conclusion. We do know that many varieties of citrus fruits have the power of developing without pollination. On the other hand, in the varieties where seeds are normally developed, we might expect that there would be less set without the pollination. In such a case bees might be an important factor.

H. J. Webber,

Director Citrus Experiment Station.

Riverside, Cal.

I cannot believe the foregoing letter is correct, however, as I am quite sure the bees gather pollen from the orange, for I have seen them in the act. I am not positive about the variety from which it was gathered, but I will make some investigation.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



In looking at that photo of G. Frank Pease's work-tent and auto truck I am wondering if the sweet-clover bloom furnishes Mr. Pease with much of his surplus. At any rate, he bought several hundred pounds of seed of me some time

ago. It is the progressive beekeepers who look to improve their pasturage in every way possible.

THE ADVERTISING OF HONEY.

I think that many of our beekeepers are wrong in the assumption that nothing is being done to extend the use of honey. The fact is, a great deal is being done. Take conditions in the Southwest, in the West and middle West. Very few farm papers there are but carry from one to half a dozen honey advertisements. True, the classified columns are most largely used; but everybody reads the classified columns. I verily believe that thousands of dollars are spent annually by the beekeepers in this form of advertising. Of course, it is not general publicity, but it must get results or it would not be persisted in. This kind of advertising could be wonderfully improved by aid rendered the beekeepers in wording their advertisements, and something should be done at standardizing the goods offered. Honey is offered at from 5 to 12 cents a pound; and while much of it is very variable in quality and color it is no doubt true that honey of equal value is sold at a wide range of prices.

If the beekeepers would follow the methods used by some of the livestock associations and fruit-growers, better results could be secured. Suppose twelve beekeepers join together and each put up \$200 for a winter advertising campaign. There would be \$2400 to spend. The twelve beekeepers before the campaign began would all be prepared to put out, say, 10-lb., 30-lb., and 60-lb. cans of honey of the same quality and at the same prices. Then a two-inch advertisement with as much taste in the way of illustration as could be secured in this space with effective copy, and the names and addresses of all the beekeepers at the bottom; or instead of the names and addresses of all the members might be the name and address of the secretary to whom orders and inquiries could be sent. My idea of an advertisement of this kind would be one with the effective appeal to the people to use more honey, and also the prices at which it can be secured.

Each beekeeper would need to be pro-

vided with circulars, price lists, honey booklets, and a record system to keep track of inquiries and orders.

The amount of money mentioned would carry on a very nice winter campaign from October to March, and would cover the agricultural press of most districts of the United States. It would pay for two-inch space in from ten to fifteen weekly farm papers for five months. I have found that farm papers of 50,000 to 100,000 circulation are better mediums than those with 200,000 up, for the amount of money expended for space in each class of publication. Beekeepers who advertise will find what papers pay them best by a trial of a few months. It is rather expensive to gain the knowledge of the best mediums, but there is no royal road to marketing one's crop.

Floods in California and snow-slides in Colorado indicate what we may expect in 1916. Prospects are good, and bees are wintering well. I believe that the amount of honey carried over will not be large, and it would do the heart of beekeepers good to see the way honey is coming into its own in many localities. People are eating more honey—it is getting more publicity, and the lower prices have induced wholesalers to handle carloads where, in the past, little if any has been handled. In the future these districts will call for honey; and while the prices received this year have been ruinously low, it has made it possible for honey to be introduced into markets that before took little if any. Honey is being retailed at five cents a pound in some districts, and it seems to be a fair quality too—at any rate, it gives satisfaction.

WHAT BEEKEEPERS COULD DO.

Take, as an example, a county producing ten cars of extracted alfalfa or sage honey for export shipment. Suppose, instead of the owners of this honey taking \$15,000 for it, or 5 cents a pound, that they set aside (or, rather, borrow, which they will have to), \$5000 to put into an advertising campaign. The honey would bring, I believe, \$24,000, or eight cents a pound on the average. It would not be well to put the entire amount into newspaper advertising. Some could be used in trade papers (grocers), and in a house-to-house canvass. A few salesmen could be put on the road selling to grocers direct. With the advent of cheap runabouts, double the territory may be covered at no additional expense provided the roads are passable.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Generally speaking, our climate averages pretty well one year with another. In other words, if we get a drouth, quite likely a wet spell will then follow; if we get milder weather than usual during early part of the winter, extreme cold may be looked for later on. Certainly the latter has been true here in Ontario this winter, when a very mild January was followed by a February three degrees colder than the average (official), while March to date (15th) has been very severe. The first five days were all below zero, and on the 10th five below. As we have had only thirteen days during the winter that have shown below zero temperature in our locality, it is easy to see that March has more than done its share in furnishing us cold weather.

On page 81, Jan. 15, A. I. R. asks, "How many years and even centuries has it taken the *bee* to learn the trade of making the beautiful honeycomb?" The answer is real easy, but I won't give what I think is the correct solution of the problem, as it would be too simple for modern scientists to consider a moment. Instead of answering the question, allow me to ask another one along the same line: While the bee was *learning* how to make the "beautiful honeycomb," where were all the *baby* bees being reared in the meantime?

Some time ago I stated that the common dandelion came as near to being an all-the-year bloomer as any plant we have in Ontario, as I had found blossoms in nine months of the year. On Jan. 25 I found a fully developed blossom in front of a hive, so now I shall have to say ten months instead of nine. But the common garden pansy is a close second for the honor of being our hardiest plant—indeed, it may even lead the dandelion. On the same day that I picked this dandelion blossom, different parties near us gathered pansy blossoms in their gardens. But bees do not work on pansies, and they do on dandelions. That is enough to make any beekeeper give the latter plant the preference.

Misery loves company, they say, and on that basis I am inclined to agree to a certain extent with friend Holtermann in his lament regarding European foul brood, p.

116. While I dread this disease I am losing no sleep over the matter, and I take comfort from the fact that men like Warrington Scott and others in Ontario who first had the disease among their bees, while they do not claim to have entirely gotten rid of the disease, yet have so mastered it that it in no way interferes with getting big crops of honey when there is any nectar in the neighborhood. I am hoping that, when we get the disease among our bees, as we are sure to do sooner or later, we shall be able in time to do likewise. That is the grain of comfort I chew at when I allow my mind to think of this "curse of beekeeping."

This question of how far bees fly will never be solved to my satisfaction, as there are so many things to be taken into consideration, such as strains of bees, topography of country, etc. For years I was inclined to take a view similar to expressions on page 965, Dec. 1, and, in fact, I seriously doubted that bees very often go more than a mile and a half in search of nectar.

Our apiary north of Orillia is in a flat wooded country similar to that described by the editor, Dec. 1, and observations taken in 1913 prove how erroneous are the views that, under such conditions, bees fly but little over $\frac{3}{4}$ of a mile. That year a terrible drouth visited the section in question, and all the clover on high land was literally burned up. Nearly three miles southwest of the apiary of over 200 colonies was a strip along the river bank that was kept moist enough so that alsike clover was kept in bloom. The river had been dredged out, and this strip of clover was only a few rods wide and ran along the river for about two miles still further from the apiary. Our bees came to this strip of clover by the hundreds of thousands, and they were on the clover to the further end, so that many were nearly five miles away from the apiary. There was no question about the matter at all, as one could stand at the north end of the strip and see thousands of bees coming and going to the yard, and there are no other bees in that locality.

That same year there was some white clover west of the apiary across the bay. It is two miles direct to the bay, and more than half the distance is forest. Yet our bees, under these forced circumstances, flew the two miles to the bay, and then another two miles across the water. You will un-

derstand there was no pasture near the apiary, owing to the drouth having burned everything up. And yet right here in York County for years our bees would get nothing during August, when less than four miles away there was quite an acreage of buckwheat and bees near it were storing surplus. Clearly this matter of how far bees fly in search of nectar is a complicated one. [As we have stated, bees have been known to go seven miles, and a great many times two and three miles; but our contention is (see page 149), when flora is within a mile or a mile and a half, bees will not go further as a rule. It is only in peculiar cases that they go from two to three miles. Then, as Dr. Miller points out elsewhere, the matter of odor probably has some bearing. The aroma from clover or buckwheat fields probably can be carried by a breeze several miles; and if there is no clover or buckwheat in the immediate locality bees will keep on flying in the direction of odor mellifluous until they arrive at its source. The question then of how far bees fly for stores depends on the locality and conditions. See editorial.—Ed.]

Bees have had no flight to amount to anything, altho bright sunshine is coaxing many to leave the hives, never to return. Present indications are that there will be quite a loss in many apiaries from dysentery. Colonies were unusually full of young bees last fall; and altho the latter part of winter has been cold, yet we have had colder seasons more than once. The cause would seem to be bad stores, probably caused by excessive moisture during late summer and fall. Another reason advanced to explain the cause of dysentery is that January was so mild that much brood-rearing was started, and then so much cold weather followed, with no chance for a flight, that naturally such conditions would follow. Personally I noticed young bees in the pupa stage being cast out of a number of hives early in February. That was *prima facie* evidence that brood-rearing was going on in January all right. Whether that is the correct diagnosis as to the cause of dysentery or not, I am not sure; but certainly for some reason we have more of the disease in our York Co. yards than we have had for a number of years. As to the north yard, as we have not been there since last October, and do not expect to visit the apiary for a few weeks yet, we know nothing as to its condition.

Any beekeeper knows that, when cold weather comes, the bees in the hive form

a cluster, the size of said cluster being determined by the severity of the weather. No doubt many a beginner has turned back a quilt of a colony known to be strong, and if the temperature was down below zero the smallness of the cluster would cause him to think that the colony had become very weak. On the other hand, if the weather moderated to the freezing-point or higher, a look in the hive again at that time would make things appear that the colony had just as suddenly become very strong again. This is orthodox, and up to the present season I think that possibly I would have said there are no exceptions to this rule. Early in the winter my attention was called to one particular colony in the home apiary when I noticed cappings, dead bees, etc., on the fresh snow in front of the entrance when all other colonies had no such evidence of activity. The colony was in a hive equal to 12 Langstroth frames in capacity, a single packed hive having an entrance five inches wide and one inch deep. Looking in this deep entrance I was surprised to see the bees quietly hanging below the frames, even tho the thermometer was but a few degrees above zero. This was unusual, to say the least; and when I next lifted off the cover of the hive and took a peep under all four corners of the quilt, and found bees in every corner, it is needless to say my surprise increased. Altho they were not at all uneasy I prophesied that there would be something doing before spring. To make a long story short, scores of times during the winter I examined that hive; and, no matter how cold the weather, the bees could be seen from the entrance, quietly hanging below the frames, and every corner of the hive would be packed full of bees, as would be revealed when packing was lifted up and the quilt carefully turned back. I am not sure whether this queen will prove to be a genuine "find" or whether the colony will yet go to pieces during the spring; but the fact is, they have been as described for over three months; and today, March 13, the colony is quiet, sweet, and clean when other colonies in the same yard are showing signs of dysentery. Probably about ten per cent are thus affected.

The queen in this colony is a dark Italian, and was purchased last July from one of our well-known breeders. Don't ask me any questions about her for a while yet. For a month or two, perhaps, I shall not want to mention the matter at all if the colony should yet prove to be a "four-flusher." However, you may be assured that this hive will get its share of my attention for the next few weeks anyway.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



THE BEST BEES.

"I am a comparatively new beginner with bees, but wish the best bees for comb honey I can possibly get. In time I may conclude to work for both comb and extracted honey. Are some bees better for extracted and others for comb?"

Volumes have been written on this subject, and the matter is not fully settled in the minds of many, even at the present time. Some claim that the black bees are preferable to any for comb honey, especially the large gray kind that they have in the South, while the smaller jet-black bee is nearly worthless. After trying in vain to get that large strain of black bees, all proving nothing better than the black bee of my first fifteen years of beekeeping, I have concluded that some one was mistaken. The black bee is superior in only one point for comb honey; and that point is, the *white capping* of the section honey which they produce. Comb honey sells mainly by the nice appearance of the sections; and the blacks, by leaving a greater air-space between the honey and by their heavier coating of wax, give the best possible appearance to section honey. And at all times of a bountiful flow of nectar, long drawn out, they are as good as any bees for honey; but with a slow intermittent flow of nectar the golden Italians are far ahead as to the amount gathered, while they cap their honey nearly as beautifully as do the blacks. However, some of our very best apiarists tell me they do not know which are the best.

If I were producing extracted honey altogether I would select the darker Italians, those produced from queens from an imported mother, or the most superior strain of leather-colored Italians which I could find bred by some breeder of known integrity. I would allow the young queens to mate with whatever drones there were in and about the apiary, paying no attention as to whether these drones were from Italian, hybrid, or black stock. Bees from such queens would use much less wax in capping combs than from any other strain which I know of; and as the capping of combs cuts no figure in the taste or looks of extracted honey, I should be so much ahead, as, for the most part of the time in the average surplus season, wax secretion is possible only by a larger consumption of honey.

If I were working for comb or section honey exclusively, then I would procure a

good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet, the most of which, without doubt, would be from an entirely different "blood" from themselves, which would give a direct cross. Such direct cross always gives greater vigor than anything I know of; and, as the question is asked, I should not care very much whether my yellow queens mated with drones from black or hybrid stock, as all of my experience goes to prove that thorobred golden Italian queens, mated to drones of either black or hybrid stock give bees equal to the very best for comb-honey purposes. If I could conveniently hinder it I should prefer not to have these queens meet drones from young queens reared from imported mothers—not because they would not give queens just as vigorous, and of just as good honey-gathering qualities, but for the reason that, as a rule, workers having much imported blood in them do not cap their honey nearly so nicely and captivating to the eye of the consumer as do those having more of the golden, hybrid, or German blood in them.

From the lot of young queens reared from this same golden mother I would select one or more queens which give the best results in section honey, considering amount produced, color, and smoothness of the cappings, disposition and wintering qualities, and use them to breed from for a year or two. Or I would get another golden queen from another experienced breeder in whom I had faith, and go over the ground again.

To sum up I would say, first have your young queens mate with drones as distantly related to your queens as possible. Second, use queens as closely related to imported Italian or leather-colored stock as possible, where working for extracted honey, for there are no better bees in the world, in my opinion, than those two or three generations from imported stock for securing all the honey there is to be had from your locality. Third, where white capping of combs becomes one of the great objects to work for, as is the case where working for section honey, choose the golden Italians, on account of their qualities in that direction. At the same time they are in no way second to Italians from imported stock, or the dark leather variety as to their honey-gathering qualities. Lastly, put your own self into this breeding business, using all the energy and vim you possess.

GENERAL CORRESPONDENCE

PERFECT POLLINATION OF CITRUS GROVES

BY PROF. E. G. BALDWIN

Your timely discussions of the proper number of colonies to fertilize a citrus grove, in various pages of *GLEANINGS*, have greatly interested me. While it does not seem to be *imperative* to know *how few colonies* will do the work, still it may be useful on occasion; for it will often happen, probably, that some groves will have a minimum quota of colonies in their vicinity. In such instances, if the number of colonies present were below the accepted and proved minimum, the owners of such groves could easily bring in sufficient to insure fullest fertilization. So it is wise to discover, if possible, what number will do effective work, where more can not be had. But I have always held, here, that "the more the better," and that seems to be the idea that is crystallizing in the minds of the growers hereabout, and even further south, about Bradentown, for example, and Tampa.

The blossom of the citrus (orange or grapefruit, for instance) is a so-called "perfect flower"—that is, has both pistils and stamens on the same stem, more or less united at their bases. The pistils rise a little higher from the base than the enveloping stamens, which stand outside of and lower than the pistils. There are, hence, three ways in which the blossom can be fructified—gravity, wind, and insects. Gravity carries the dust from some stamen above the particular blossom in question down upon the pistils of the blossom below. Wind carries the dust from other blossoms on the same or nearby trees, over upon the pistils of blossoms within wafting distance. One citrus tree usually has many blossoms out at one time tho not with anything like the same evenness as the blossoms on apple-trees. The orange-blossoms come out much more irregularly and far less simultaneously. Nearby trees also add their contingent of fertile stamens to fertilize the pistils of any trees that are near enough; therefore, even were wind and gravity the only fertilizing media or agencies, there would be some fruit, often heavy crops of it, from these agencies alone. The fullness of the fertilizing would in all such instances depend on, first, the fullness and evenness of the bloom on the particular tree under consideration, the proximity of other trees, and their simultaneous blossoming period, etc.; second, on the weather during the time of bloom.

It is this latter point that we have studied most carefully. In our latitude (29th degree) the citrus-blooming time is at the end of February and thru March. In the latitude of Tampa, for example, it is the latter half of February and early March. Our conclusions are based largely for our personal deductions—that is, on data recorded by us in and about Deland. Here we have on an average, say, five weeks of blooming time. That means that from the time the earliest blossoms come out on the first and most advanced trees and varieties (tangerines are much later than others), to the end of the "last lingering rose" of the tangerine blossom, on latest groves (and land and location alter the time much), we have an average of about a five-weeks' bloom-period. That gives an outsider a very erroneous impression, I fear, about the length of bloom of a single blossom. I have watched this very carefully, and I think a blossom seldom hangs on more than three days, on an average. In hot dry weather one good day of sun seems to "cook" it, and it is done for the second day. For that particular blossom, then, the fertilization would have to be done within about two days, say, to be effective and best. Of course one day is sufficient provided the pollen from some stamen is wafted to the pistil in that time. But a season of damp foggy weather, when pollen wafts but little during the bloom of the particular blossom, would likely prevent full fructification of that blossom. A dead calm, too, in that time, would make gravity the only means of fertilization. For such blossoms as happened to come within the wet or calm weather only, would fullest fertilization be impossible. The succession of blossoms on other stems of the same tree would give opportunities for their fertilization outside of the periods of calm or dampness. But, taking our average springs here, one with another, we do not average more than half the time really favorable weather. Much is either damp, or a dead calm. And were gravity and winds the only agencies for fructification, we feel sure that many blossoms would not be fertilized at all. Of course, you may say that, usually, every tree sets enough fruit to insure a sufficient crop. But would it do so with these two agencies alone? I must confess that I am not in position to state dogmati-

cally or with finality on this point. I am planning now to make a test of the question by covering certain branches during their time of bloom, and test by actual observation the effect on a large number of blossoms, kept from all visits of insects.

That brings us to a discussion of the observed data from the increase of bees among our groves. Six years ago one could hardly find a dozen men to the county in Florida who kept bees, and most of those were small holders. Now the number has grown by leaps and bounds. Then, too, many fruit-growers had an antipathy to bees, thinking they damaged their bloom. But enlightenment is coming. Now, those same growers who objected to bees in their groves are asking beemen to place apiaries in their holdings. Here, for instance, one of the largest growers of this section, Judge Stewart, has made a request to have bees placed in his large groves north of town, seeing what has been done in the increase and quality of fruit in and about town, where so many bees are flying. Half the grove men here have bees in their groves, either their own (largely so), or sometimes from neighboring beemen. Mr. C. F. Spaulding, of Deland, was the first, ten or twelve years ago, to see the importance of bees among his trees, and located a small apiary in his grove at his own expense, not for honey, but for fertilization. No one has had better fruit nor more even-bearing nor fuller carrying from setting to maturity than he has had for a decade past. His grove is pointed out as one of the most even-bearing. That was even ten years ago. Now, with hundreds of colonies to ten then, he has not found it necessary, as I have taken over his apiary. But I have 100 colonies within a block of his grove. There are probably over 400 colonies within flying distance of any one grove in and about town. If, as seems to be the growing idea, bees do not fly more than a mile and a half, on an average, then we need more bees rather than fewer. That is my contention. From a pomologist's point of view, not that of the apiarist, we seem to be coming to this view. "The more the merrier." Too many bees there cannot be; all will admit that. Too few there can easily be, all are coming to admit. Just how many make the minimum is the problem. I wager it is impossible to do more than determine this point roughly from our present data, at least.

One point I should like to add: I can easily see why Editor Root should insist that fewer bees per acre are needed to fertilize orange-trees than fruit-trees north,

for two reasons—namely, first, the shorter time of blooming in the fruit-trees; second, the comparatively weak condition of colonies in the North at the time of fruit bloom. Perhaps a third element might be added, the fact of bad weather at the time of fruit-tree bloom. My statements in our local papers were all directed toward encouraging an understanding of the matter, and a favorable attitude among our growers toward bees in their groves. So I stated a large number as the necessary one. I wrote the following for the local paper two years ago, since which time a marked change in attitude among growers here has been noted. I may be allowed to repeat that closing paragraph:

"For best results there should not be fewer than five hives to an acre; even more are better; for in stormy weather, when bees fly for only a short time during the day, or for only a short distance from their hives, a larger number of colonies will insure perfect fertilization, where a smaller number might not."

So, in absence of accurate data as to the minimum of safety in numbers, I have pleaded for the maximum. The idea also is growing among beemen further south in the state, I note in some instances. I refer notably to the Manatee Fruit Co., of Palmetto, and to the groves of Mr. Z. Goddard, of Terra Cea, Fla.

The final point I wish to make is this: That growers are at last coming to admit the Darwinian theory as true in their fruit, that the fertilization of blossoms from trees remote gives stronger buds, and young fruit, and makes better mature fruit, which in turn improves the strength of the seed, and makes for constant improvement in vitality all thru the entire life of the tree, and thru succeeding generations of stock. The growers in and about Deland and Brantown and Tampa and Arcadia and Orlando, hold this idea, "The nearer the bees to their groves the more fruit they have, and the better the quality."

Editor Root says, that on his visit to Florida he found the growers unaware of any bees in their groves, often, and yet they secured large crops of fruit. He adds that he found bees flying there, and always told them that they probably knew little of the real number of bee-visitors they really had among their trees. His remarks were most pertinent, and showed the accuracy of his observation; and it might be well to remark that there are a dozen—yes, twenty—bee-trees in the average flying distance of any grove in Florida, compared with one such bee-tree within flying distance of the usual

orchard in the North. That would make a difference; for it would insure fertilization, even in bad weather, in cases where the grower thought there were no bees about. Few men, till their attention is called to it, notice whether bees are on the blossoms or not.

I was glad to read the article, p. 92, Feb. 1, taken from the *Hemet News*, of California. It seems to corroborate what I have been forced to conclude from my own observations along this line.

Deland, Fla.

FROM THE CALIFORNIA STANDPOINT

BY M. C. RICHTER

As for California, it can be stated positively that all of our commercial varieties of citrus fruits are able to set and mature fruit without pollination. The navel orange has no pollen, and very rarely contains a seed. If, perchance, a seed has formed in the navel orange, it means, in all probability, that a bee has brought some pollen, *e. g.*, from a Valencia tree, to the stigma of the navel orange. It has happened at times that navel oranges in some orchards have had a considerable sprinkling of seeds in them. This phenomenon, however, is of rare occurrence.

On the other hand, about half of the Valencia oranges contain seeds; but it rarely happens that there is more than one seed in an orange. The seeds are, of course, the result of pollination. But if all the bloom of a Valencia orange-tree were protected from insects, there would nevertheless not be the slightest diminution of set and mature fruit.

The same is true of lemon-trees. Dr. J. Eliot Coit, Professor of Citriculture of the University of California, and the leading authority on the Pacific Coast, performed the following experiment on a lemon-tree. Just before the buds opened he cut off all the upper portion, *i. e.*, the petals and the stigma of the pistil that receives pollen. The bloom, nevertheless, set and matured good fruit, which did not contain a single seed. This experiment, altho made for another purpose, *viz.*, to ascertain whether the lemon-tree could produce seeds parthenogenetically, also proved that pollination is not necessary to set and mature fruit.

The honeybee in the citrus orchards of California is not an unwelcome guest, however. She does not harm the orange-grower, but she does enrich the state by thousands of dollars annually.

San Francisco, Cal.

[Prof. Baldwin states the peculiar conditions in Florida so clearly that we consider if his estimate of the number of colonies needed per acre were too high ours was too low. As he says, it is far better to err on the safe side—that of having too many, rather than too few to do the work of pollination, both in the orchards of the North and of the South. The last paragraph in the article referring to the item on page 92 is somewhat at variance with the following article. Who is right?—Ed.]

[The conditions in California, especially when seedless fruit is grown, possibly are quite different from conditions in Florida and in the Isle of Pines. A Florida orange and a Florida grapefruit are quite different from the same fruit in California. If we are correct, Florida oranges all have seeds, as the seedless variety apparently doesn't do well there. There are a great many seed oranges and grapefruit grown in California; but the grapefruit in California is very much smaller than that from the Peninsular state. Many colonies of bees are in the vicinity of the orange and grapefruit groves in California. They gather a large amount of honey from the groves. The presence of the nectar would seem to indicate that Nature has an object in seeking out the visitation of insects in the citrus groves. While it is probably true that seedless fruit can be grown without bees, it is possible that larger grapefruit could be grown in California providing there were more bees to the acre.

At the present time the citrus-fruit growers of the Isle of Pines are discovering that they need bees; and we happen to know that certain concerns furnishing bees are having calls for bees. Bees in Cuba are so badly affected with disease that the residents of the Isle of Pines do not care to import from their nearest neighbor and are, therefore, seeking the breeders in the United States.

From the best advices at hand, the Isle of Pines is greatly in need of bees because the fruit-growers there are waking up to the fact that they probably could grow more and better fruit if they had more bees.

This is a rather interesting question, and we hope that some time the Bureau of Entomology, Washington, can give us scientific data on it.—Ed.]

JUST HOW IMPORTANT IS THE WORK OF THE BEE?

BY J. E. CRANE

We have all doubtless seen apple-trees that blossomed profusely, and that apparently set full; but when the young apples were as large as beans, they began to drop, and kept on until not enough apples were left for half a crop. Now, what proportion of this dropping is caused by lack of the proper fertilization of the flowers? I believe a much larger share than we think. It seems evident that there is a wide variation in the ability of fruit-trees to become fertile. Some may produce from the pollen of the same flower, while others may set fruit with pollen from other flowers from the same tree, while still others may require pollen from some other tree.

Plants have many ingenious ways of scattering their seeds over the earth. The dandelion, with its winged seeds, the burdock with its burrs that stick to everything that comes in contact with them. The "tumbleweed," by breaking off at the surface of the ground at the approach of cold weather, and rolling over before the wind, which scatters its seeds everywhere in its path. Fruit-trees cover their seeds with a pulp enjoyed by man and other animal life, and just as the fruit ripens gives the skin a bright color to attract attention, the object of which is doubtless that the fruit may be plucked and the seed scattered. Fruit-trees seem to know by instinct what the pulp of the fruit is for, and just the object of surrounding the seed with it, and when the embryo seed does not develop in the ovary they seem to know the utter uselessness of developing the pulp, and absorb the

cells that connect the stem of the fruit to the twig of the tree, and let it drop to the earth. If the tree could speak I think it would say, "It is useless to produce fruit unless it contains seed." How wonderful it all is! We are accustomed to think that the young fruit drops because of the dryness of the earth, or very hot weather, or because the tree had set more than it could carry to maturity, and doubtless these may have a part in causing the young fruit to drop; but there is reason to believe the imperfect fertilization, or complete lack of fertilization, is more often the cause of the dropping of young fruits.

But there are some surprising exceptions to the rule. There is the seedless banana. The navel orange, some varieties of grapes, and even some apples and pears, will mature without seed. Here is a large field for experiment by boys or girls. Let them take two branches on the same side of the tree, of nearly equal size; count the blossoms on each. If not the same, make them so by removing some from the branch having the most; then cover one with mosquito netting, leaving the other without cover. Remove the netting after the petals drop. When the fruit ripens, carefully count the number of fruits on each branch. Observe if other insects than bees are at work on the flowers—what kinds, and the proportion of them to the bees. Also we should like to know the variety of apple or pear experimented with. Peaches, plums, cherries, and even currants and gooseberries might come in for a share of our attention.

Middlebury, Vt.

CAN EUROPEAN FOUL BROOD BE STAMPED OUT?

Encouragement for Mr. Holtermann

BY GEORGE H. REA.

I don't wonder that Mr. Holtermann can not derive much comfort out of his Jobishite friend's advice regarding European foul brood. While it is Mr. Holtermann's bees that are "boiling" instead of himself, yet there is some analogy between the cases after all. If Eliphaz and Bildad and Zophar were not much comfort to Job, they did one good thing—they stirred up his fighting blood.

To control a disease and exterminate it are two different things. Like Mr. Holtermann, I am not satisfied with merely controlling the disease. I am satisfied with no-

thing less than its extermination, so that it will not be eternally cropping out in my apiaries and keeping me in hot water lest it break out seriously at any time. I can not afford to spend half of my time looking for it.

Mr. Holtermann is hunting for "the one who has stamped out the disease after it has spread among his bees." I will essay to offer my services in that capacity. If any one has doubt up his sleeve, pay me a visit and look up my records. Besides cleaning up the disease from my own bees I have helped to rid it from this community. It has been prac-

tically stamped out of several other badly infected areas also. I am now serving the state in the capacity of apiary inspector.

Any one conversant with the bee literature of today knows that more confusion is resulting every day from the many so-called treatments for the cure of European foul brood, and all the time the disease marches triumphantly on. It has swept over whole countries and states, and bids fair (as I understand) to sweep over the whole of Canada. Some of the best beekeeping countries of Pennsylvania are practically depleted of bees by its ravages, and the end is not yet. This is true of other states also. Shall we ever be able, then, to conquer and bring under control this scourge among bees, or shall we throw up our hands and give up beekeeping as a bad job? I say, give up—never! It can be stamped out of an apiary or community.

As to eradicating this disease from the country, that is a question of right legislation backed up by adequate funds and the employment of experts who will use radical methods of treating it. Up to date I know of no state that possesses that happy combination. But I have faith enough in the bee business to believe that the time will come, at no distant day, when it will be recognized and cared for adequately.

I do not wish to add anything to the confusion and losses resulting from the improper treatment of European foul brood; but I do wish to pierce Mr. Holtermann's cloud of gloom with a ray of hope and comfort. Before I knew how to handle this disease, and while experimenting with many so-called cures, I lost hundreds of dollars' worth of bees. Others have done the same thing. I know it is a serious pestilence; but, on the other hand, I know positively that it can be stamped out. To do this involves the fundamental principle used in fighting many diseases with which we are familiar—i. e., sanitation. Sanitary measures used in combating epidemics of typhoid, cholera, smallpox, etc., need no discussion. The simple expedient of removing the bees away from all infected material into a clean hive where they can build up anew, if properly done, will positively cure European foul brood with no danger of its recurrence unless the bees rob it somewhere or have it carried to them.

I want to go on record, without fear of successful contradiction, that the beekeeper who treats his bees infected with European foul brood exactly as he would for American foul brood (two shakes) will eradicate the disease from his apiaries. Those who advocate many of the so-called short cuts

(most of them long cuts) have not been able to prove to the satisfaction of the beekeeping world that they can eradicate the disease. The very fact that they are continually looking for it and expecting it to break out again shows that something is wrong, either with the men or the methods. Why don't they get rid of it?

I might give my long list of experiments and failures as well as the ruined apiaries I have found as a result of unsuccessful treatment, but it would take too long. We have had it in this locality as badly as anywhere, but it is here no longer.

We must all admit that some experts in some localities and under some conditions may do some things that we common mortals can't do. Now, if they can cure European foul brood by dequeening and requeening, etc., that is the thing for them to do. I must admit that I can't do it without a feeling that it is pretty sure to recur some time in the future. From what I have seen in my visits in hundreds of infected apiaries, I know that the rank and file of beekeepers can't do it either. I could show that the shaking treatment is the most economical, anyway. Dequeening and requeening, Italian bees, etc., are of no avail so far as a sure cure is concerned. They are helps, and should be used in connection with a cure, but helps only. In order to *keep* your bees clean it is necessary, of course, to have the surrounding territory clean so that your bees will have no place from which to carry it by robbing.

MY METHOD IN BRIEF.

Any colony showing the disease is shaken at once. If the infection is general in the apiary, which is probable in an outbreak of European foul brood, all colonies are shaken in order to run no risk on those that do not show it. Good combs of honey are extracted, and the combs, with all other empty combs, are melted up. Combs containing diseased brood, if bad, are burned. Enough bees are left on the brood to care for it, and this brood is then stacked up two, three, or four stories high, in an isolated corner of the yard to be shaken in 21 days. The entrances to these stacks of brood must be small so that the bees can protect them. The cover and the whole thing, in fact, must be bee-tight excepting the small entrance. There is no danger of robbing if well done. Strong colonies will result from this brood when shaken. The combs are then to be melted up.

The first shake is on starters attached to strips of lath. Three or four are all that is necessary. The second shake at the end of three days is on full sheets of foundation.

Any colonies, at the first shake, not strong enough to make good colonies, are shaken together.

If a honey-flow is on, the bees may be supered as in the regular method of forced swarming practiced by some, and a crop of honey harvested. If no honey is coming in they must be fed.

The wax from the melted combs will pay for the new foundation and the work. The bees are now absolutely clean, and on new combs, and practically nothing is lost but the time necessary for the work, and that is really paid for. Do not lose sight of the fact that other bees in that locality must be looked after too.

By the shaking treatment the bees lose practically no time. In fact, they will work with the vim of new swarms. All colonies headed by old or failing queens, or those not pure Italian, are replaced with young Italian queens. Methods of treating that involve a period of queenlessness make a serious break in the life of the colony. The bees will practically loaf thru that queenless period. A colony left queenless or without a laying queen for two or three weeks will be of no particular value for the rest of that season. I trust that no one will misunderstand me. I recognize the many good and valuable things in other methods of treating; but fifteen years' experience with this disease has taught me

that radical treatment is not only the safest but the most economical in the end, and the only sure way to stamp it out.

There is much talk just now about strains of Italian bees that are immune. It would not surprise me if some would-be queen-breeders (?) would start advertising such bees. Will the gullible public bite? There is much evidence that Italian bees are resistant to the disease because of their vigor, and should be introduced generally as a help in the fight. But *immune*—not yet. I venture to say from the very nature of things they never will be, but that is another subject. We all know how Italian bees will clean out the bee-moth and keep them out. That is because they are a hardy and vigorous race of bees, and not easily discouraged. They will work at European foul brood the same way, and tend to keep it down; but while they are doing so in many cases they are losing out at the same time. The beekeeper who thinks that he will never have European foul brood just because he has a good strain of Italian bees may wake up with a sudden jar some fine morning.

I know what it means to handle more than one thousand colonies of bees with little competent help, and to treat hundreds of cases of foul brood, and I offer my experience for what it may be worth to others. Reynoldsville, Pa.

TO THE RESCUE OF MR. HOLTERMANN

BY LAURENCE A. P. STONE

Poor Mr. Holtermann! I wish I could sympathize with his sad remarks on page 116, Feb. 1; but, unfortunately, my feelings concerning the menace of European foul brood among the bees do not disturb me, altho I have had to contend with this disease among my bees ever since I have been in the bee business. It has been more of a blessing than a woe, for it has improved conditions among the beekeepers of my locality, and made it possible to get decent prices for honey.

Situated as I am, in Canada, just across the river from Buffalo, I have had the full benefit of European foul brood ever since it crossed Niagara River. Before the disease arrived, almost every farmer in the vicinity had one or two hives of vicious black bees; and when any surplus honey was made they sold it for a song. It was impossible for any bee specialist to compete with these people, as the latter would invariably undersell. Since these farmers never gave any time to their bees, what honey they

received was in the form of a bonanza, and what they could not eat themselves was promptly sold at the first price offered, or, rather, just a little below the one they heard the regular beekeepers were offering. No care was ever taken of the bees; the hives were made of any kind of material, and I doubt if one person in ten of these had ever seen the inside of a hive.

Then came the disease; and the way it wiped out these beekeepers was a caution. Before long a hive of live bees was almost a curiosity in the neighborhood. Luckily for me I had started right, and had mostly Italians. The disease used to touch my yards now and then; but with one exception it never took a firm hold in any colony of pure stock. Only the hybrids suffered, and I requeened these as fast as I could with good stock imported from the United States, and in but one case was there trouble with the queens purchased. These queens came from a very prominent breeder, and I was pained with the results obtained from their

bees. They gathered but little honey, and were very poor resisters of European foul brood, while experiments with them cost me a number of colonies before I awoke to the fact that they were not what I wanted.

Keep up your spirits, Mr. Holtermann! You'll find European foul brood much less serious than you think, if you have Italianized, and I feel sure that you have. I do not agree with Mr. Selwyn when he says that the Italians must first suffer from it too. Mine did not, and that is reason enough for me to disagree. It does not take much trouble to find the disease in a yard, and requires very little more inspection than should ordinarily be given a normal apiary. In the first place, if bees get thru the spring months and to the clover flow without contracting the scourge, it is almost a sure thing that there will not be any until a scarcity of honey again; so, outside of treating the colonies that contracted it before this time, one need not be looking for new cases but devote his time to the honey harvest. One need not be so expert as Arthur C. Miller in understanding the conditions inside of a hive from outside appearances, to know foul brood is present. It is easily noticeable without tearing the hive to pieces to find it.

I have tried many methods of treating European foul brood, and I don't blame Mr. Holtermann for feeling the world on his shoulders if he is considering many that are recommended. To follow the instructions of many bee-doctors, one would have to destroy all combs and hives in the infected area, and do nothing but treat sick bees. I don't destroy any hives, and but very few combs; yet I manage to clean up the disease and get a good crop of honey. My treatment follows Dr. Miller's, except that I kill the queen from the diseased colony and introduce fine Italian stock, so as to have a new queen laying at the expiration of the ten-day period. I never attempt this plan during the spring or fall, but only during a good honey-flow, as the bees very rarely clean up the disease unless plenty of nectar is coming in. I attribute this to the fact that bees always seem, during a flow, to feed the fresh honey to the larvæ; and as this honey, as a rule, is free from the germs, there is very little reinfection in the colony. In the fall or early spring, more radical treatment is necessary. If the combs in a hive have more than one-eighth of the unsealed brood diseased at a time more than two weeks in advance of the clover flow, I shake the bees off on to full sheets of foundation, giving them one comb of *sealed* brood from a good Italian colony; and after a week I kill the old queen and intro-

duce Italians. If the colonies to be treated are fairly strong, and there are more than one of them, instead of destroying the brood I stack it up two stories high, leaving enough bees adhering, after the shaking, to hatch out the sealed brood. At the end of ten days I open up these stacked queenless colonies, cut out all queen-cells that have been built, and introduce good Italian queens. The infected combs should be melted up and the hive burned out with gasoline.

In the fall I simply destroy the colonies as stated, for it has never paid me to keep a diseased colony over until spring.

However, the nicest way to use Dr. Miller's method, and still get a crop of honey from the bees (unless the disease has gone too far), is to commence treatment at the beginning of the clover harvest. Make the infected colonies queenless, and unite as many together as will make up one strong colony and then introduce choice queens after the ten-day period, *but first make sure of destroying all queen-cells started by the colonies*. Instead of laying queens I prefer introducing choice cells, because I have plenty of choice drones flying, and cells are much more easily accepted by hives that have been queenless for ten days than frisky young queens. Dr. Miller's plan works all right with me, and I think it will with others, provided they use it as I do.

Mr. Holtermann, in my opinion, will not find European foul brood such a calamity after he has dealt with it a year or so, especially if he uses the afore-mentioned treatment. Henceforth, because of a little more watchfulness he will get bigger crops of honey and have finer bees. Where there are now ten beekeepers to compete against in his vicinity, there will soon be but one. Nothing but the right kind of beekeeper will be left in the business, and better prices will be obtained for honey. In short, fight the plague now and reap the harvest later, for virtue, in this case, will surely give a reward.

The time is not far off when, because of European foul brood, there will be no finer bees nor better class of beekeepers in the country than in my own county of Welland. However, I see no reason why all other counties, including Mr. Holtermann's, because of these diseases, cannot correspondingly improve. The wintering problem right now is far more troublesome to me than any bee disease; and our good friend, since he has mastered the former so well, certainly will not have much trouble with the latter. Therefore, Mr. Holtermann, be not pessimistic. Better times are surely in store for you if you care to work for them.

HAND'S CONVERTIBLE HIVE—A WINTER CASE WITH LITTLE EXTRA EQUIPMENT

BY J. E. HAND

Economical methods of winter protection of bees outdoors is a hobby of mine. My colonies are all in 14-frame hives with supers to match, but we have no difficulty in contracting a 14-frame colony into an 8-frame wintering-chamber, and all our colonies are wintered that way, partly to economize equipment, but more particularly because I regard extreme contraction fully as important as external insulation.

After an experience of forty years in outdoor wintering in the North I have come to regard external packing as inadequate unless coupled with extreme contraction of the wintering-chamber. In northern Ohio it is better to provide a moderate amount of packing with extreme contraction than to resort to excessive packing without adequate contraction of the wintering-chamber. An ordinary colony is poorly protected in a non-contracted hive in spite of packing—like a small heater in a large room. A two-story hive in a winter case will do no harm if the honey is all in the top story, neither will it do any good. Every wintering hive should have a three-inch space below the frames, and, of course, a packed bottom-board would be superfluous.

Undoubtedly the quadruple case will winter bees well in most locations, but it is not perfect. 1. It is expensive. 2. It is idle capital six months of the year. 3. It requires too much lifting of heavy hives (to eliminate the nuisance of handling heavy hives I adopted a hive so heavy that one man can't lift it, and I've been happy ever since—no more hive toting for me). 4. The basic principle is wrong, for a thick-walled inner chamber non-contracted invites condensation and humidity, and a thin-walled outer case invites radiation.

It is more economical and practical to make hives protect bees than to make winter cases to protect hives. By a system of hori-



J. E. Hand's 14-frame hive.

zontal expansion in summer to the capacity of 14 frames, and contraction in winter to eight frames, the hives proper are converted into winter cases with no extra equipment save a thin-walled inner chamber costing barely 25 cts., useful in summer for nuclei, increase, etc., therefore not idle equipment.

Fig. 1 shows a 14-frame convertible hive as used in the summer with frames hanging parallel with the entrance. The external appearance is the same in winter except the entrance, which is contracted to $\frac{3}{8}$ by 6 inches. Fig. 2 shows the inner chamber in position inside of a regular hive-body, with frames hanging at right angles to the



The hive containing the inner wall for the contracted colony in winter.

entrance, thus providing adequate spaces for packing. The extra depth of the inner chamber (12 inches) provides a deep space under the combs, and a full-depth upper story holds sufficient packing on top.

These hives cost but little more than good winter cases, and we have the satisfaction of knowing that every hive is a winter case, and *vice versa*. To prepare for winter, place eight combs, having the most honey, in the wintering-chamber, which is then placed on the floor inside of a regular hive-body put on the top story, and feed until every comb is solid full of honey and syrup; then apply the packing in the regular way, and let them alone until they become crowded for room in spring. Eight combs will hold approximately 40 lbs. of honey, which we regard as the minimum limit for best results in northern Ohio, where the weather is so uncertain in spring that it is unsafe

to depend upon nectar secretion for a food supply much before June; therefore we find it more economical and practical to provide sufficient stores to last until June than to fuss with feeding in April and May, and our spring work is thereby greatly facilitated. By this method every brood-comb is handled separately and inspected carefully in spring and in autumn. It means work, but not heavy lifting, and we know the exact condition of every colony.

The convertible hive is 20x24x9½ inches outside. Supers and brood-chambers are alike and interchangeable. If more packing is wanted at the ends it can be made longer; but for our location 24 inches is sufficient with our system of extreme contraction. The inner chamber is 13x19, 12 inches deep, made of half-inch sides, and ¾-inch ends. I have no hives for sale.

Birmingham, Ohio.

DELEGATES' SESSION OF THE NATIONAL BEEKEEPERS' ASSOCIATION

BY F. ERIC MILLEN, SEC.

At the forty-sixth annual meeting of the National Beekeepers' Association, held at the Sherman Hotel, Chicago, Ill., on February 22, 23, 24, the delegates present made an effort to place the National on a more stable foundation.

For some reason the National has not made much headway during the past few years, and it seems to have receded somewhat from the prominent position it formerly held. The past is gone, and it would serve no good purpose to dig up differences which we hope are safely buried. All of the officers did their best; but with a lack of unity progress was impossible.

There is room and need for a national association of beekeepers, and an immense amount of good work can be done by the National body for the good of beekeepers individually and collectively. Dr. C. C. Miller, America's grand old man in beekeeping, fittingly expressed the sentiments of those present when he said that it would be a pity to see the National break up. The doctor recalled many profitable conventions in days gone by, and these meetings had been the source of much pleasure in the meeting of brother beekeepers, and the exchange of greetings one with another. I am sure the doctor's remarks made every one of us feel that the National must live; and now that the doctor has diagnosed, let us make the prognosis favorable.

The sentiment was strongly expressed that the new officers should avoid commer-

cialism in the form of selling supplies, etc., and that they should confine themselves to helping the beekeepers along other lines, educational, fraternal, etc., which they thought were just as profitable, and more needed by the beekeeper.

With the exception of Mr. E. J. Baxter, Nauvoo, Ill., a new set of officers was elected as follows:

President, Professor Francis Jager, University Farm, St. Paul, Minn.

Vice-president, Dr. W. M. Copenhaver, Helena, Mont.

Secretary-treasurer, F. Eric Millen, East Lansing, Michigan.

These three officers, together with Mr. E. J. Baxter and Mr. E. S. Miller, Valparaiso, Ind., are to act as directors.

Mr. E. D. Townsend, editor and owner of the *Beekeepers' Review*, resigned as director, so that the new officers would feel free to inaugurate new policies without being tied in any way. Those who are personally acquainted with Mr. Townsend know that he has the interests of the beekeepers at heart, and that he would sooner remove himself than oppose any measure that seemed to be for the good of the cause.

While the *Review* is still the official organ of the National, it is now owned by Mr. Townsend, who dictates its policies.

The National Beekeepers' Association will work under the articles of the constitution as printed in the December number of the *Review* for 1915,

Membership dues to the association are \$1.50, which includes the *Review*. We cordially invite all beekeepers to join the National Beekeepers' Association. Members are eligible, whether their state association is affiliated or not. We hope the beekeep-

ers will show their confidence in the officers elected, and aid us in building a national that will be a source of pride and a credit to one of the greatest beekeeping countries in the world, America.

East Lansing, Mich.

SOURCES OF HONEY IN THE OZARK MOUNTAINS

BY OTIS A. GRIFFITH

Beekeepers here in the mountains are looking forward to 1916, as the prospects are excellent for the main honey-producing plants, white clover and sweet clover.

We are looking forward to the time when white sweet clover will take the place of all other hay crops. Besides being the best for honey, it is a soil-builder, and also the best for hay and silage. On many old wornout

It furnishes early pollen for the bees. Red cedar and red elms of the bottoms come next. By March 30 we have glade moss, buckeye, sarvis bush, maples, pawpaw, dogwood, and redbud. These furnish some honey. By this time there is a wealth of bloom of all kinds. The south slope furnishes an abundance of wild buckwheat, which begins blooming in May. After this



Cutting the first crop of buckwheat on the "Heights," a part of the Ozark Mountains, near Verona, Mo.

clay fields it is grown successfully. I have scattered many pounds of seed along the roadside. Five years ago I offered to give sweet-clover seed away, but today I have no trouble in getting rid of it at the market price.

Altho this locality here is nearly level it is in reality the highest point in the Ozark Mountains. The valley and the hills are covered with a natural growth of all kinds of timber, and there are many wild flowers blossoming thruout the season, which furnish either honey or pollen. The mountain elm blooms first of all, about February 20.

comes the white doe, a natural honey-plant. It is snow-white, grows about two feet tall, and has a white flower in a compact form. When a bee alights on one of these flowers it apparently does not leave until it is ready to start back to the hive with a load. The flowers last about thirty days, and the honey is water-white.

We have also what is called the fox-grape and the bluevine. While the blooming period of these vines is short, the yield of honey is good. The fox-grape grows along the streams and on every bluff. In some places it is impossible to walk because of

the tangle of these vines, all a mass of bloom, and the perfume of the flowers can be smelled for many yards.

I have never failed in getting two crops of Japanese buckwheat from the same land each year. I get from ten to fifteen bushels per acre at each crop. I had the third crop in full bloom when our first hard freeze

came last fall. If the first crop fails to mature, or if it blasts, as it often does, I plow it under and smooth the land down. I always plow under more than enough seed to reseed the second crop. Buckwheat plowed under makes a fine fertilizer, and gets the land in fine condition for a meadow.

Verona, Mo.

DO BEES PREVENT DAMAGE TO FRUIT-TREES BY FROST?

BY G. W. ADAMS

There has come to my knowledge a matter concerning the fertilization of fruit by bees which I have never seen touched upon, but which, if true, is of great importance.

Here is the claim, and it is made with a good deal of confidence after several seasons of careful observation, and on a rather large scale. *Bees will, to a very considerable extent, prevent damage by spring frosts.* The experiment has been mostly with peach, but applies to all blossoms.

The large orchard I have in mind was greatly damaged about one year in three, and to some extent every year. An apiary was established, and in a three-year test there has been no appreciable loss, altho the frosts have been (as proven by a local weather-bureau station) fully as late and severe.

Two reasons for this appear at once.

1. Every day, before the chill of evening arrives, the ripe blossom is fertilized, and the life processes transferred from the extremely delicate and exposed parts of the blossom to the protected ovary which is sheltered and closely covered in the base.

2. From the observation and study of vegetable temperature, we get evidence that there is a slight development of heat accompanying these vital processes. A careful and technical study of this will show its importance more fully.

I think no fruit-grower who has observed with care will dispute that most fruit damage by cold is to the open blossom, the freezing of the bud being the less common; and if the bees will protect us from this as well as by their prompt action, lessening the loss by heavy rains, we should realize and appreciate it.

Rowley, Mass.

[Several times there have appeared statements to the effect that, when proper and complete pollination takes place, the ordinary light frosts of the spring will do little or no damage. Prof. F. A. Waugh, author of numerous books on fruit culture, and probably as good an authority as there is in the United States, to whom this was forwarded, makes the following reply:—Ed.]

Mr. E. R. Root:—The letter from Mr. Adams is very interesting. I have never heard this claim made before, and of course do not know of any practical or scientific observations bearing on it. It is true, of course, as a general statement, that bees assist very materially in the pollination of fruit-blossoms; and in critical times, such as partial damage by frost, this assistance would count for a good deal. Aside from this indirect and wholly problematic assistance, it is difficult to see how the bees could accomplish the results claimed.

Amherst, Mass.

F. A. Waugh.

MANY A BEEKEEPER CAN MAKE HIS OWN HIVES

BY E. E. COLIEN

The article by Lewis L. Winship, page 1022, Dec. 15, contains some rather exaggerated statements. His illogical expressions, such as "the average home-made hives are fit for nothing so much as kindling-wood," invite contradiction.

In defense of the home-made goods, and of the ability of the ordinary workman to produce an article in every way as good as the factory-made, I herewith present a picture of one of my own make of hives and

supers. Mr. Winship admits that a few beekeepers can make their own hives, but charges that they usually try to economize in every possible way; and the hive, when finished, usually looks like the one in his illustration. He says, further on, that "the hive shown is *better* than the average run of home-made hives, and you must be quite a carpenter to make one as good."

I deny his theory, and call attention to the hive herewith presented in refutation of

his statement. I am not a carpenter, have never shingled a square, nailed on a piece of siding, nor hung a door. But I *have* been a farmer. I am past 70 years of age, and farming has been my occupation from boyhood.

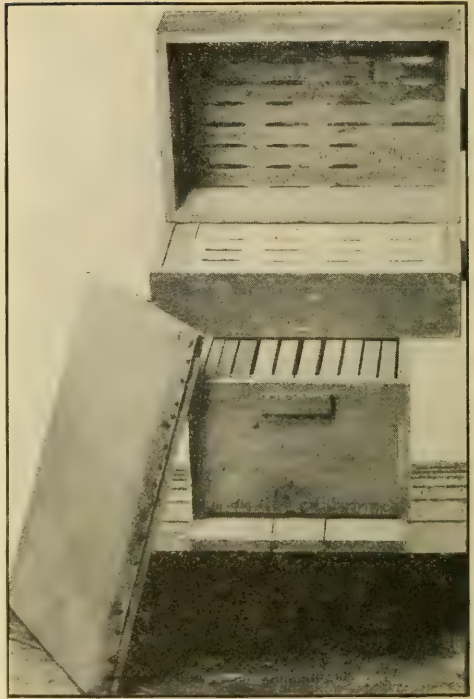
Fifteen years ago I started gardening, and eight years later I added beekeeping to my employment. I started with two colonies; had never managed or seen bees managed, but subscribed for GLEANINGS and bought an A B C of Bee Culture; studied carefully and kept bees profitably on the information thus gleaned.

Five years ago the present winter I made up 30 hives and 60 supers, and you have in the picture before you one of these hives after five years of service on the summer stand. You will observe its still prime condition. The nailing was done with cement-coated nails, and every hive was painted at once. Today you can scarcely find an opening at any of the joints that will admit a pin to the interior.

I am producing comb honey exclusively, and my crop the past season exceeded a ton and a quarter from 40 colonies, spring count, and I made an increase of thirty colonies. My honey, all white, netted me 15 cts. per pound on the Chicago market, or \$375. I sold 13 colonies of bees for \$45.00 more, making in all \$420, and an addition of 17 colonies for the season's work in my apiary.

The foregoing is from an amateur who makes his own hives and supers, and advocates economy, not only as a privilege but as a duty.

If what I have done as an ordinary workman proves to the unbiased mind what the average beekeeper can do, does it not appeal



Not a bad job for a home-made hive.

to common sense that all over this country may be found beemen who, during the long winter months of otherwise enforced idleness, make up their own hives and supers, in which the bees find comfort and safety despite the deplorable picture by Mr. Winship, and his statement that ninety per cent of the home-made hives are not fit to keep bees in?

Manana, Wis.

FASTING VS. SMOKE

BY J. M. BUCHANAN

A writer in the New York *Sun* gives the following simple method of writing poetry:

Webster has the words, and I
Pick them up from where they lie,
Here a word, and there a word,
It's so easy it's absurd,
Merely range them in a row—
Webster's done the work, you know.

Thus it seems that anybody ought to be able to write poetry.

A writer in GLEANINGS gives the following simple method of introducing queens: "Close the entrance, all but an inch; blow in plenty of smoke; close entirely for a quarter of a minute; then run in the queen,

and close again for ten minutes." Easy, isn't it? "It's so easy it's absurd"—until you try it. Then follows a page or more of "qualifying conditions," a sort of *sine qua non*—page 108, Feb. 1.

Let's look at some of these. First, the hive must be smoke-tight. How many hives in a thousand, taking the average apiary, will you find perfectly tight at all joints and corners? Possibly two or three. Second, the smoke must be just the right kind, just thick enough, but not too thick. Third, there must be just enough smoke, but not too much. How is the average beekeeper to judge these things? Then the hive to be

requeneed should be without supers or upper stories. Does the author of the smoke plan know that in some parts of the country supers or upper stories are kept on the hives the year round, and it is not considered poor beekeeping, either?

Now, I have the highest regard for Mr. Miller. He is an original customer. He has the courage to leave the beaten paths, and go forth and find. For that I admire him. And he generally finds something worth while. No doubt, with his intimate knowledge of bee behavior he can make use of the smoke-in method with a very small per cent of loss. But the average beekeeper does not realize the qualifying conditions, and so he fails. At least, so many have failed that this can hardly be called a successful method.

Let us look at the so-called "starvation" or fasting plan. As I use it, this plan differs somewhat from the Simmins plan. The essentials are these: See that the colony is without queen or queen-cells; confine the queen alone, and without food, for forty-five minutes; push the hive cover or super over an inch or so, blow a puff or two of smoke into this opening, and let the queen run

down among the frames; then replace the cover, and the work is done.

Now for results, and that is what counts. Out of hundreds of queens introduced by this method, my loss has been less than one per cent; and there are hundreds of beekeepers in this and other states who are using this plan with uniform success, and who will bear me out in this experience. I have failed a few times in trying to introduce to laying-worker colonies; but, as Mr. Miller well says, that is poor beekeeping. I would not advise this nor any other method in that case, nor when the bees are engaged in robbing.

You don't have to wait till dark. I introduce any queen, any time, anywhere I want to, and the beauty of it is that anybody else can do the same. Under the best conditions I have lost twenty per cent of queens introduced by the antiquated cage-and-candy plan, and I don't believe others who use it have much better success. That may be a good thing for the queen-breeders so long as they don't guarantee safe introduction. If you are looking for a safe and sane method, try the fasting plan.

Franklin, Tenn.

A LARGE PRODUCER MUST BE A SMALL PRODUCER AT THE START

BY J. B. DONOHO

In 1912 I found a bee-tree near my home. I sawed off the section of the trunk containing the colony, and brought it to the house and set it in one corner of the yard. I watched them as tho I had a gold-mine, but they swarmed in a few days, and all left the stump. I don't blame them much when I think of the house I had provided for them. Then I bought some bees in box hives—five colonies in all. I soon found, however, that I had started beekeeping the wrong way.

The following winter I bought enough hives to transfer all my colonies, and transferred the first one March 4, and by the last of March I had all five in new clean hives with full sheets of foundation, using what young brood they had in good straight combs also. You see I had bought an A B C and X Y Z of Bee Culture, and had learned a little about bees.

As soon as possible I divided and made ten colonies, getting a fair yield of honey that season.

In 1914 I increased to 23, reserving 5 to be run for honey, and running the other five for increase. I succeeded in getting some honey from some of the colonies run

for increase. I got over 200 pounds from one of the colonies run for honey, making a little over 1000 pounds of honey from my apiary that year.

I lost 3 colonies the following winter; but in the spring of 1915 I increased to 45 and got a fair yield of honey, about 50 pounds to the colony. I hope to increase to 100 colonies next spring.

It takes a little common sense and backbone to start into beekeeping. Mr. Scholl thinks the one-horse beekeeper ought to quit and go away back and sit down. I agree with him, since by his ignorance he runs prices down; but I want to know how any man, not knowing much about bees, can start in the business without starting the one-horse way. If some one had given me 200 colonies before I learned anything about them I should not have known what to do with them, and the whole thing would have gone to the scrap-pile. I just wonder how many colonies Mr. Scholl himself started with.

I sell all of my honey in my home town, and cannot fill all of the orders I get. For comb honey I get 18 cts. a pound, and for bulk comb honey 12½.

Grandview, Texas.



THE APIARY FROM WHICH THE BEES STING(?) THE GRAPES.

My apiary is in the center of a town—Twin Grove—having a population of 40. I have never had any trouble with the neighbors with the exception of one man at the far end of the town who complains of the bees bothering his grapes. He tries to make out that the bees sting the grapes, and then take out the sweet.

JAMES D. BENSON, Juda, Wis.

HONEY PRODUCTION AS A BUSINESS IN THE HAWAIIAN ISLANDS, AS SEEN BY A MALIHINI

BY LESLIE BURR

Beekeepers sometimes move from one location to another; and while they do not move very often, yet they are always talking about moving. In fact, I do not remember any beekeeper with whom I am well acquainted but has expressed the idea that he thought that, if he were in some other and distant location, he could make more out of his bees. For the benefit of those who want to move from their present location to some distant land, I am going to describe the conditions here at the Paradise of the Pacific, the Hawaiian Islands.

The Hawaiian Islands are a territory of the United States, within the tropics, and at a distance of over 2000 miles from California. There is no foul brood nor any other disease to be contended with, nor winter losses. The beekeepers do but very little of the actual work themselves. They hire Japanese to do it for them, and the Japanese make good help, and work at very low wages. The principal honey-plant is the algaroba, and there is plenty of it.

Now, all those who want to come to Honolulu, hold up your hands. Well, I see my old friend Summerford, Hickox—yes, and there is Claude Hill, but he says that his

better half says he had better stay in Ohio, and several others.

Now that I have you fellows hooked, I will tell you some more about the Hawaiian Islands: First, that while the country in and about Honolulu is good bee country, it is overstocked. At the present time there are twice as many colonies as there should be. The apiaries are owned by Japanese, and they have an apiary just about every place where they can put one. If you desire to work outside of Honolulu, you are in worse luck. Everything here is big corporations, and that applies to honey production. One company has 5500 colonies, and there are others almost as large. Those corporations control all the good locations, and they have bees on them. But then, I know that some of you fellows, if you were here, would get an apiary or so located somewhere, so I will tell you what other troubles you would meet. So here is the second batch of difficulties: Ants are a pest, so that special hive-stands have to be constructed. These stands are of two parts—an upper part and a lower one, the upper section being placed upon iron supports, and the supports being covered with oil so

that the ants cannot climb them. As to the quality of the honey produced, aside from the algaroba honey, which comes in the summer, it is all vile stuff. Perhaps I had better say that it is the poorest grade of honey I ever saw. As to the market, prior to the war in Europe the honey went to Germany, but now there is no market for it, and at the present time the crop of the past season is in storage in Honolulu, and indications are that it is going to remain in storage for some time.

In my opinion the outlook for the honey-producers at the present time—well, it is not dark. The only word that will suffice

is *black*. What will the outcome be? Well, I am not bothering my head, neither should you fellows. You have troubles of your own.

As to local markets, there is a market here, and no doubt it could be greatly increased. As a matter of fact, people are at work, and honey in bottles has within the last few weeks been placed upon the market. The honey is bottled by a bottling company on the Pacific Coast, and the honey in the bottles is California honey. You see the Hawaiian honey is in storage awaiting the end of the war in Europe.

Honolulu, Hawaiian Islands.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sights

BY H. H. ROOT

Did you ever stop to think that most photographs of an exhibit of honey show what looks to be more like an exhibit of ink? Even light-colored honey takes very dark, and a photograph of dark honey makes black ink look pale. The trouble is due to using the ordinary photographic plate on which to take the picture, and neglecting to use what is known as a filter. The average photographic plate and film is oversensitive to blue and violet, and under-sensitive to yellow and orange. This means that the plate does not record much reflected light from the yellow honey—not much more, in fact, than if it were black, hence the very dark appearance of the honey.

Panchromatic plates, on the other hand, are sensitive to all colors, as indicated by the name; and when used with the proper "filter" the true shade or tone of the color desired can be preserved. While I have not tried them, I believe that good orthochro-

matic plates would answer just as well for honey as the panchromatics.

The illustration shows four pictures of the same jar of honey, photographed and printed under exactly the same conditions, aside from the use of different plates and filters. The honey in the jar was very light—very light yellow, in fact—and it was placed on a pure-white card so that it would show as light as possible. Even under these favorable conditions, taking the picture on an ordinary plate (Seed 23) as shown in the first illustration made the honey appear like a dark amber. If the honey itself had really been an amber honey, this first picture would have shown the honey very dark—almost black. The second picture of the series was taken in exactly the same way, except that a panchromatic plate (Standard Panchromatic) was used. Notice that the honey appears a little lighter. The third picture was made with a panchromatic



Four pictures of the same jar of honey. No. 1.—Photographed on Seed 23 plate, no filter. No. 2.—Photographed on Panchromatic plate, no filter. No. 3.—Photographed on Panchromatic plate, K1 filter. No. 4.—Photographed on Panchromatic plate, K3 filter.

plate, but with a very light-yellow filter over the lens, known as the "K-1." The last picture was taken on a panchromatic plate with a "K-3" filter, which, as can be seen, has the effect of making the honey appear almost water-white. The "K-3" filter and the panchromatic plate is the right combination for average photographing of honey; but under very favorable circumstances where the honey is very light, and has a

white background, the "K-1" filter gives about the right tone. Beekeepers who own cameras might not be able to use just this combination, especially in case of film cameras; but if a photographer is employed, insist on his using a "K-3" filter and a panchromatic plate. Your picture will then look like your exhibit, and not like an exhibit of Carter's ink. Figures may not lie, but pictures can.

SOWING SWEET CLOVER WITH OATS

BY FRANK COVERDALE

1. I have a piece of land from which a corn crop was taken last fall. I wish to get it seeded to sweet clover as soon as possible. Will it do as well if sown with oats as if sown broadcast alone in the spring?

2. If sown alone will it be better to sow it without breaking up the ground in any way (ground being firm and quite even) or would it pay me to disk it and harrow once? I have to hire all work done, so if disking is not necessary it would be an advantage financially.

Granville, Mich. W. M. P. Jerrett.

Mr. Jerrett is located at Granville, Mich., where I rather think his land will not be so dry as to prevent him from getting a good growth. I would recommend making a test for acid, however. To do this, secure from a druggist a few sheets of litmus paper. Stick a spade three inches into moist surface soil; withdraw the blade and put in a sheet of litmus and press the soil tightly against the paper for ten minutes. After removal, if the litmus paper has turned pink, lime is needed for best results. However, if there is only a slight pink color on the paper it is possible to get along without the lime.

In either case, Early Champion oats is the best variety to seed with. Sow a third less than the usual seeding of oats. It is a pretty good plan to inoculate the seed. I prefer the glue and dust method when it is

done right. Select some soil three inches under the surface, where sweet clover has grown for years. Dry it in a cellar—not quite dry, but so it will pulverize nicely. Moisten the seed well with glue water that is just a little sticky when put between your finger and thumb. Mix thoroly, allowing all the dirt possible to hang to the seed. I have had the best results by sowing this inoculated seed by hand, because in this way the dirt sticks to the seed, whereas a seeder rubs and grinds it loose. None of the extras need be put on where sweet clover has been growing in late years. Do not allow the sunlight to strike the seed before covering.

Referring to the second question, it will pay Mr. Jerrett to make a seed-bed on the surface, cultivating it quite well, as the white sweet clover always makes a stronger growth on such prepared land. It is always the poorly cultivated as well as the corners that are missed that do the poorest.

If the soil cuts in well, one good harrowing will be sufficient. If not, double and harrow. It probably would not pay to plow unless the land is a tough sod. I always plow such fields with good results, and secure a good deal of seed or hay the first season.

If Mr. Jerrett should not want to disk or plow the ground I would advise sowing the seed in March just as the snow is going off.

Delmar, Iowa.

TWO FORMS OF BEE PARALYSIS IN JAMAICA

BY C. N. EDDOWES

Having read two articles recently on the subject of paralysis in bees, the last by Mr. M. Y. Calcutt, page 990, Dec. 15, I was induced to take up the subject again. In an article on page 881, Dec. 1, 1913, will be found my experiments, and the results obtained by breeding to obtain stock immune to this disease. As Mr. Calcutt does not

give a full description of the appearance of the bees when suffering from paralysis, and as there will probably be a question whether paralysis in Jamaica is the same as that in the United States, I will give a full description of the bees as they appear when attacked by the disease here.

There are two forms of the disease, the

first being very fatal, and, so far as my experience goes, impossible to cure. In the second, the bees in some cases appear to recover without any external aid.

I will now proceed to describe the two forms. In the first, the abdomens of the bees are not distended; in fact, they are somewhat shrunken, and have a smooth sticky appearance, and are darker in color than healthy bees, and have the characteristic quivering of the wings and legs, but are able to fly to a certain extent. In consequence of this, the number of bees seen dead in front of the hives, and clustering on the grass, is not as great as in the second form, as the majority of the bees fly for a short distance before collapsing. In this form the drones are very often attacked, and sometimes, but rarely, the queen. In the second form, the bees' abdomens are greatly distended by accumulated feces. Their coloring and appearance, other than that of the trembling of the wings and legs, do not differ from that of a healthy bee. None of the bees are able to fly and crawl out of the hive and fall to the ground. In bad cases they cluster in bunches of from ten to thirty.

In neither form is there any sign of dysentery. Both these forms of disease have existed in Jamaica for a sufficient length of time for the native bees to have become to a very great extent immune; whereas the progeny of imported queens are generally

more or less susceptible. I am not able to say whether this disease is caused by the parasite *Nosema apis* or not, as I have not been able to have any bees examined, up to the present, but intend doing so as soon as possible.

As *Nosema apis* is known to affect bees in Brazil and the northern parts of South America, and the West India Islands, the probabilities are that *Nosema apis* is responsible for bee paralysis in Jamaica. There is, so far as I know, no cure.

In the second form of the disease mentioned in a former paragraph, where an apparent cure has been effected by the bees, it invariably breaks out again, and the colony eventually dies. Most commonly both forms are found in the same hive. It appears the only further help I can offer is to refer enquirers to the former article written by me. My subsequent experience since that article was written has justified my still adhering to my statement that the only cure for bee paralysis is to select and breed immune stock.

Half Way Tree, Jamaica, B. W. I.

[Instead of there being two forms of bee paralysis, we are inclined to think it is all one and the same disease under different stages of development. Possibly environment has a tendency to modify the form and the symptoms. See answer to Mr. Cox in this issue.—Ed.]

THE NEW BEE DISEASE AND AN ALLEGED SURE CURE FOR IT

BY ADAM A. CLARKE

I have been reading all the descriptions of what you call the new bee disease, in *GLEANNINGS* for Jan. 15. I have also read the editor's comments on it, and will say that, in my opinion, he has not missed it far when he says it is only paralysis. I have had a good many cases of this disease the past ten years, and, like all the rest of the beekeepers who give a description of it, have found it hard to cure, for, if not treated successfully in the first stages, it will soon cause severe loss, for it not only destroys the colony but your chance for securing a crop of honey is at stake also.

I notice that our oldest experts in the business are at a loss to find or give a cure for it, but say that it will disappear with the advent of warm weather. This is partly true; but a good many colonies will also disappear before it warms up. I have no fear of it any more. I can treat it successfully, after trying everything recommend-

ed in all the bee literature I could get hold of, and, not getting any satisfactory results, I experimented according to my own ideas, and have hit the nail square on the head. It costs next to nothing to stop it. This is the cure:

As soon as you see the effects showing up in any colony, take common lime fresh slaked, and keep this all around the entrance of the affected colony, using some (fresh) every day. Be sure to get it on all the bunches of bees that get some distance away from the hive. Do not use too much lime at one time—just enough to kill all the sick bees and keep the entrance of the hive disinfected. In a few days there will be no more dead bees around the hive. Then I open the hive and note the conditions inside. If only a few bees and the queen are left I take them with the combs they are on, putting them in a fresh hive, leave them in the same place, at the same time giving

them a frame of hatching brood from some other colony. Thus I have not had it fail to cure. The rest of the combs I have used in any place in the yard, and have never seen any ill effects from using them thus.

If the disease is of long standing the combs have a very foul smell. They should first be exposed to the light and air, when, in a few days, they will have lost this smell, and are ready to use. I notice that where there are only a few bees left with the queen the brood hatched from the frame given them will soon supersede the queen;

so in severe cases the queen becomes weakened.

I hope that all readers of this the coming season will give it a trial; and if my directions are minutely carried out, there is no need of losing a single colony.

Le Mars, Ia.

[From what we have read of this disease in other localities we are not so sure that the lime treatment would be an infallible cure. It is worth trying, however, as it is so simple to apply.—ED.]

NOSEMA APIS, OR BEE PARALYSIS; A NEW WAY OF APPLYING THE SULPHUR CURE THAT SEEMS TO BE A SUCCESS

BY J. SAMUEL COX

On page 784, Oct. 1, I came across the following question: "Nosema apis, Bee Paralysis, or what?" and reading the subject following I was surprised to see that, altho far away in another country, I am not alone, but like those who have suffered and are suffering. Altho I am not altogether out of the woods I can safely say, "Thank you, that the worst is over, for my workers are no longer dying as heretofore by this strange disease. On the contrary, all my weak colonies are getting strong again, from many of which I am now extracting a full-depth super of honey, and, from a few others, two. The only thing I have not yet got rid of altogether is the dying of the brood; but even this I have reduced to about 5 per cent, and I am confident in a very short time I shall get rid of the disease entirely."

According to descriptions given, my apiary has suffered from the same thing, and I can confidently say that the brood of this apiary has not died either from neglect or starvation; for as soon as I noticed this dying of the bees I made a general examination of all my colonies; and while some were greatly reduced in bees, the majority were still crowded with busy workers; and even among these very strong ones the dead larvæ and some brood were found in some combs more than others. Just a little before this a light flow started, and the bees were working fairly well, insomuch that, when I first saw the bees crawling on the ground in the morning, I concluded that they had come home laden with honey and had fallen on the ground; and as my hives are about 6 or 7 inches from the ground I got strips of board cut to convenient lengths and leaned them up from the ground to the alighting-board; but none of the bees would

go up or showed the least desire to return to their hives.

I do not remember exactly what date I first noticed this dying of workers; but some time about the last week of June I noticed here and there a few bunches of dead bees which increased daily until the ground of the entire apiary was nearly covered.

Seeing the victims crawling on the ground much the same as with paralysis, I was inclined to think it was that disease. Altho I have had to do with that disease several times years ago, I have never seen such a scourge among bees as I was then having in all my beekeeping days; for surely if I had not found a cure, this apiary must have been wiped out ere this.

I went from hive to hive, watching the entrance to see the bees taking out their sick ones, but never could I see any. It seemed as if as soon as they felt sick they rushed out, and, not being able to fly, dropped and walked around until they died.

I examined the brood-nests, and found several greatly reduced in bees; and in some colonies I found one or two combs with dead larvæ here and there; in others, more; but these dead larvæ were not confined to weak colonies alone, for even among the strong ones, upon examination of these larvæ, not the slightest sign of ropiness was visible. When pierced with a pin a liquid of a light brown color would drop out as freely as a drop of water. This color was not confined to all, but each had its own, according to age. The larvæ of about four to six days are perfectly white. In some frames I found the larvæ were perfectly dry, and did not stick on to any part of their cells, as they would shake in the cells if the frame was shaken.

Seeing the bees dying out so rapidly I

thought the best thing to do was to try to find a remedy as soon as possible. Remembering that sulphur is good in case of paralysis I resolved at once to give it a trial. I looked up the A B C and X Y Z, and this encouraged me to give the sulphur a trial. I concluded, however, that, as sprinkling the combs is injurious to the larvæ, I would try another plan. Accordingly, I opened the hives and took out all affected brood, and gave full sheets of foundation in their place. I sprinkled on top of the frames of the brood-nest a mixture of honey, sulphur, and water, putting enough honey to sweeten, so that the bees would feed on it readily, and for the further reason that the bees that do not leave the hive had indoor feed. I also gave them a general open-air feeding of this same mixture every day for two weeks. This, for two reasons, they did not seem to notice for a whole day. First, I put in enough sulphur to give the feed a slight smell. This in a measure destroyed the honey odor. Second, as already stated, there was a light honey-flow on, especially in the morning, and all beekeepers know that bees work more readily on nectar than anything else. After a few days, however, they drank up all that was given each day. This worked with great success, for at the termination of a week the death-rate was greatly reduced, and in three weeks not a bee was seen bumping about, ready to die.

The curing of the dead larvæ is the most difficult, for even in the new frames I had given were found later on the same dead larvæ here and there. The only cure I have

found for this is to give each colony a new and vigorous queen.

Guayama, Porto Rico.

[There have been numerous reports to the effect that sulphur in some form or other has not only helped but in some cases cured the peculiar disease known under various names such as *Nosema apis*, bee paralysis, Isle of Wight disease, etc. Mr. O. O. Poppleton, of Florida, a conservative and careful beekeeper, and who has had a very large experience with bee paralysis, stated that powdered sulphur sprinkled on the combs and bees would effect a cure; but the process is rather slow. Sulphur is a well-known antiseptic, and we see no reason why it might not effect a cure if applied in the manner described by Mr. Cox.

The disease has been so rampant and destructive in some parts of the world that we can well afford to grasp at every straw, especially as the reports regarding the use of sulphur as a cure have been favorable.

This fact also lends color to the theory that the Isle of Wight disease, *Nosema apis*, and bee paralysis are all one and the same thing, but modified by environment and the peculiarities of the season. In damp climates and in damp seasons, and particularly in tropical climates, this three-in-one disease, if we may so call it, is much worse than when it breaks out in localities further north in a dry atmosphere.

Taking it all in all, we would request our readers to try out Mr. Cox's remedy; and if that fails, try out the one recommended by Mr. Clarke.—ED.]

MY FIRST SEASON'S EXPERIENCE AS A BEEKEEPER

BY DR. A. P. BETTS

In April, 1915, I bought twenty colonies of bees from one Joseph Smith, a veteran beekeeper. The colonies were in eight-frame hives and in good condition. Smith had 160 colonies, and sold me a score of them for \$100, because he said he had more than he wanted.

I had never opened a hive nor hived a swarm nor seen a queen or a frame of brood. I told him just how things were, and he said I was "taking a pretty big contract," but if I wanted the bees he would take my money. "But, honest, Doc, I would advise you to take two or three colonies for the first year."

I gave Smith his money, and said I would take my chance, and that all I ever got was by doing something that some one else could not do. So he brought over the bees in a

spring wagon, twelve miles. It was very early in the morning of April 24, 1915. I remember it very distinctly. The day was clear and warm. Smith helped me set the bees in place, gave them a little smoke from his own pipe, and took the screens from the entrances. He chatted awhile, and then drove off.

Just before leaving he turned his head and said that if I needed any help I should let him know, and he would help me all he could. I thought I saw a flicker of a smile on his face as he drove away. Now, if there is anything more than another that put "pep" into me it was that grin on Smith's face. I think it was worth more than money to me as the months went by. Whenever a difficulty arose or a new problem had to be solved, when I was almost at my wits' end,

there was Joe's face with that incredulous smile.

The stimulating effect was wonderful. I bought all the bee journals and books about bees that I thought would help me and read them on every occasion that I had time. As this article is principally for the benefit of amateurs and not for the amusement of the professionals, I will speak of some of the difficulties to be overcome.

When Joe left I put on my veil and gloves and sat down to think it over. The warm sun came out, so did the bees. I didn't think we could buy so many for \$100. They made me think of a lot of Indians that I once met on the plains. They were about as careless with their weapons. The first thing I did was to open a hive. It looked very interesting to me. There were three or four frames of brood, but at that time I could not understand what all that brown capping meant until I opened several.

There were many little burrs of comb between the frames which I decided to clean off. Cleanliness is next to godliness, so in the next day or two I cleaned up the rest of the hives. Here is where I made my first mistake, for in my tinkering I lost four queens as I afterward discovered.

As I intended to run my apiary for comb honey the swarming question was all the more absorbing for me. I concluded to try the Alexander plan of increase on the sixteen remaining colonies. This was my second mistake. It afterward turned out, how-

ever, that it was a good thing I did it, for the season was poor for June honey, and I got the increase but no June honey. There was no swarming to speak of in the sixteen colonies divided nor in the increase, but those four colonies with queen-cells were surely a caution. In the future, when I need a queen for increase or any other purpose I will buy a laying one. It is more economical and less bother, especially when they can be bought for 50 or 75 cts.

In a good fall flow the bees got enough for winter (all except a few which I united in the fall), and a fair surplus for a beginner, considering the season and other things.

The honey sold at 15 cents per pound. Adding the value of this to the value of increase at \$5.00 per colony, deducting \$12.00 for Italian queens, and not counting my time, I have made \$3.40 each, or \$68, on the twenty colonies, and a world of experience which money can't buy. The \$100 at interest would bring me only \$6.00. To sum up, I think I made a good investment, especially when one considers that I now have thirty good colonies in the cellar, which are wintering well.

In the future I shall run for extracted honey. I believe that, with the help of Joe's grin (which still haunts me), and the A B C and X Y Z, and Miller and Alexander and several journals, I may give a good account of myself and the bees this coming summer.

Wauseon, Ohio.

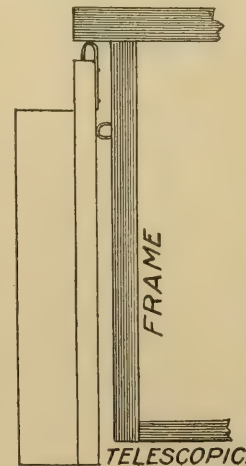
MAKING FRAMES EASIER OF ACCESS

BY L. E. KERR

Some of the most pleasant hours in all my beekeeping experience have been spent in working over new problems in hive construction. Langstroth did not expect others to work out all the fine points of removable frames; tho, as yet, the best of them at times come remarkably near being unmovable.

In an apiary of no more than a few colonies one soon learns to realize the difference in the way frames loosen from the various hives. One of the very first colonies that I ever owned was in a home-made telescopic hive the frames of which could be removed far more readily than those of the much lauded factory-made hive of today. Tho having ever since considered, more or less, a means of adapting its unusual frame rests to a cheaper and simpler hive, no entirely satisfactory solution has been forthcoming, and it is here submitted to the beekeeping public in hopes that an-

other may show how a plain (or at least plainer) hive may be so provided.



Upon this rabbit the frames are raised above the hive-ends, tho not necessarily the sides. As the cut plainly illustrates, frames are consequently tenfold more easy of access.

Supering with the rabbit shown is more complicated, and has, so far, been accomplished by substituting $\frac{1}{4}$ -inch wooden rests for the customary flat tins.

Fort Smith, Ark.

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Mother says it is all right to give rye flour and oatmeal for pollen in the early spring, but if it is for the baby bees it ought to be pasteurized.

How the Climate of Florida Differs from that of California.

I have been reading your articles in *Gleanings*, and have been especially interested in what you say regarding Florida. Will you kindly write me a line, stating how southern Florida compares with California as to climate and fruit and vegetable products in your estimation, as I understand you have been in both places?

Chicago, Ill.

D. Zinser.

[In a general way the climate of Florida is a little warmer, taking the state as a whole, than that of California. California will have any climate you desire, either by going northward up the state, or by going up into the mountains. Florida, on the other hand, is comparatively level; and the fact that it is surrounded by water makes the climate very moist or humid. Those persons who cannot very well stand dampness, especially nights and mornings, would find that the Florida climate would not be adapted to their conditions.

In Florida, for example, if a sheet or clothing of any sort is left out on a line over night it will be dripping wet by morning. Of course, this is not invariably so, but is very apt to be so during the dryer part of the year when the dews and fogs are very heavy.

In California the climate is comparatively dry; and while it does not get so warm as it does in Florida, the temperature of southern California, at least, is more uniform. There are certain kinds of fruit and other vegetation that can be grown in Florida that cannot be grown in California, and the reverse is also true.

When we speak of California we must remember that it is large enough to comprise the area of several ordinary states in the East, so that everything depends upon what is meant when we speak of California. The territory, say fifty miles north of Los Angeles and down to San Diego, comprises the warmer part of the state, and is a good deal like that in Florida, with the difference that it is dry, and more uniform from one year's end to the other. Both states have rainy seasons. Central and northern California is more like Georgia and Alabama. It would pay you to go to Florida, at least, and spend a month or so, and then go to California. You can then better decide which state suits you best.—Ed.]

Shall a Successful Farmer Give up Farming and Go into Beekeeping on a Large Scale?

I am seeking a little advice; and as you know of the possibilities of beekeeping I want to ask you if you think from a financial standpoint a young man can do as well as to engage in general farming. Men who bought land 10 to 15 years ago have made considerable thru increase in land values; but any desirable land here is from \$100 to \$150 per acre, and I question as much of an increase in the future.

I am married—have three children; am 34 years old; weigh 135 lbs.; have \$2100 on interest and \$1200 worth of stock and machinery. I sold my farm last spring and am renting at present. I have 40 colonies of bees and a good location, and there are several good unoccupied places for outyards.

I am naturally a good beekeeper, I believe, and have been fairly successful with my bees, but have always been rushed for time on account of farmwork. I love a farm and outdoor life, and enjoy the beework better than any other; but my duty to my family is to follow the course which will give them the best opportunities.

I have a chance to buy the 50 acres, good soil I am renting one mile from town (my home town) for \$7500; \$2000 down, long time on balance. Now, of course, I know it will take a good many years to pay for this; but I could do it, tho it would mean a great deal of heavy work at times. We are hustlers, all of us; and as my boy will probably not be large he will be a better help in the apiary than on a dairy farm. We are good savers; and, altho we aren't as husky as a farmer and his family should be, we are

contemplating buying this; but if we can do as well with more bees, we may extend our bee operations and buy a smaller home.

Kilbourn, Wis. H. W. Loomis.

[Your question is a hard one to answer, as so much depends on your locality, your farm, yourself, as well as the members of the family. Generally speaking, we would say that, if one has made a success of farming, he had better stick to it. In any event, we would not advocate a radical change all at once. In your case we would advise you to continue on in your farming on your rented farm where you are, gradually expanding your beekeeping operations. This you can do without very great expense by taking bees on shares, and managing a series of outyards. In that way you will secure a certain amount of increase and some honey. Operate this way for two or three years, hiring the work done on the farm, but be sure you keep a direct supervision over all the work done.]

Our belief is that the right kind of man in a good locality will make more money by keeping bees than by running a small farm. A fifty-acre farm intensively operated can be made to yield large returns; but as a general thing the average farmer seems to think he must have a hundred acres.

If you have an eye to going into beekeeping some time, continue making increase until you can get all you can handle; but you should not have less than 400 or 500 colonies; and if you operate more than this number you will probably have to hire help a part of the year. Everything will depend on you, your locality, the character of your soil, and whether you keep abreast with the times.

If you have growing boys who are enthusiastic with you, you will have a big advantage; but if you have to hire all your help, and that help is incompetent and high-priced, you will have to confine your operations down to what you can do yourself. In that case, a fifty-acre farm or 400 or 500 colonies will be all you can handle. You cannot very well work more than 100 colonies in connection with a fifty-acre farm, and then you would have to have pretty good help from your boys, your wife, and your daughters.

No one can succeed in either line of business unless he takes several papers relating to those lines, and carefully planning so that there will be no waste movements. After you have read up, unlimited patience will be essential, because your full returns will not be forthcoming the first season nor perhaps for several seasons.—Ed.]

Is It Necessary to have an Inspector's Certificate on Every Package?

I wish to make some inquiries about shipping bees. Our agent of the express company tells me that I cannot in the future ship any bees unless they are inspected by an inspector, and each shipment is accom-

panied by the inspector's certificate. We have no foul-brood law nor inspector in Maine. I have in the past had quite a large trade in bees from Massachusetts. According to his statement, as there is no inspector near, if I have to get that on every shipment, my bee-trade is entirely cut off.

J. B. Mason.

Mechanic Falls, Me., Feb. 23.

[While it is true there is no bee-inspection law in Maine, and while it is true you do not need any inspection card, or certificate of inspection, for shipments of bees in Maine and a great many states of the Union, yet you do need such certificates for states like Massachusetts that have rigid bee-inspection laws. As a general precaution it is wise to have such a certificate go out with every package of bees.]

In your case you are placed in an embarrassing position for the simple reason that you have no inspector who can furnish you with the necessary statement. We don't know what you can do except to get a foul-brood law before your legislature and get it passed. It will be difficult for you to get a large appropriation the first year. If you asked for a mere nominal appropriation and then had some one appointed inspector who could inspect your bees you would then be able to send out a certificate like all the other bee-raisers of the country.—Ed.]

Feeding by Filling Combs with Syrup

Last fall I had the same experience that many other beemen had. In mid-summer I removed all the honey from my bees that I could get, and extracted it, expecting my bees to gather enough more from the fall flow to run them thru the winter; but on account of the incessant rain the fall flow failed to materialize, and so I had to buy barrels of sugar and go to feeding.

I used the Boardman entrance feeder, and had considerable trouble because of robbing. Perhaps I was a little careless, however. I wondered why I could not put the syrup in the comb for the bees. Therefore I got one of my extracting bodies and frames which had the empty comb in. I then melted the sugar and made a thin syrup. I took the frame of empty comb and laid it flat and poured the comb full of the syrup. I then turned it over and held the comb at an angle of about 45 degrees, and poured the other side full. I filled as many of these frames as I wanted a colony to have, put them in the extracting-body, and set the body on the hive.

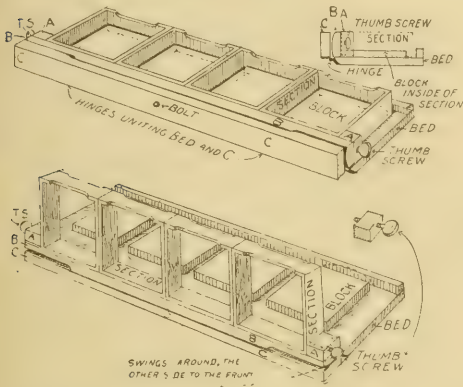
On examination I discovered that some of the colonies had scarcely any honey at all. When I found a colony in such a condition I would lift out an empty frame from their brood-chamber and put in one or more frames filled with syrup. My bees up to date are all healthy and strong; and if they continue to do so well I shall keep up this method of feeding for the young brood.

Brookville, Ind.

Darlie M. Hanna.

Form for Putting Starters in Sections

Some one else may have a form for putting in starters like the one I use, but I have never seen any mention of it. I have a rack as shown in the illustration, which holds four sections at a time, and which has spacing-blocks which center the foundation at exactly the right place.



The thumbscrew at each end of the rack holds the four sections tightly together so that they may be slung up or down on the hinges, and then when the melted wax is applied to one side of the foundation four sections may be swung around so that the wax may be applied to the other side if desired.

Cabot, Pa.

Wm. F. Ebert.

How Much Sugar Does It Take to Make a Pound of Bees?

Can you tell me about how many pounds of sugar it takes to make a pound of bees?

Isn't there a better way to hold Benton cages together in mailing queens than tying with twine? Wouldn't a paper tape such as you use to fasten the metal-spacer boxes together hold them?

Mayhew, Miss.

D. D. Stover.

[We have no accurate data. The nearest we have is the work done by Mr. W. A. Selser. He made the statement based on some experiments he made, that it took about \$2.00 worth of sugar to make a colony of bees. By colony he probably meant it would have four or five frames of brood, and possibly three pounds of bees. This \$2.00 worth of sugar was based on the valuation of sugar before the war came, or about \$5.65. The brood would be equal, probably, to two pounds of bees more if it were all allowed to hatch out, and this would make five pounds of bees for \$2.00 worth of sugar.

We do not know of any better way to hold mailing-cages together than by the use of strong string. If you nail little wooden cleats along the end they are liable to split, and one of the cages lose out. We have had some trouble where the cages were held together by little wooden strips and the nail driven thru into each cage.—Ed.]

Does It Pay to Feed in the Spring?

In reading "Fifty Years among the Bees" I conclude that Dr. Miller's location is very much like my own—that is, his honey sources are about the same, with the exception of cucumber bloom which he has from the fields of the growers for the pickle-factories. He is two degrees north of me, or about 150 miles, which makes his season a little shorter and a little later in the spring.

I wish to ask him if he believes it pays to stimulate bees between fruit bloom and white clover—that is, feed a little every day, no matter whether the bees have plenty of stores or not. If his location is like mine there is nothing yielding honey then except dandelion, and I have always practiced feeding at that time; but I am doubtful if I am any the winner for it. My doubts are aroused by other bees in the neighborhood being about as strong as mine without the feeding. Of course, if the bees were short of stores they would need to be fed. Would it be best to feed in that case a little at a time or a big feed all at once?

Sabetha, Kan.

Frank Hill.

[Dr. Miller replies:]

In a locality where there is a dearth so long that the queen stops laying entirely, it is important, not only that the bees shall have on hand a good store of supplies, but that they be fed every day or two. The break between fruit-bloom and clover, at least in this locality, is not enough to stop the queen laying, provided abundant stores are in the hive, and I don't believe anything would be gained by frequent feeding. Of course, any shortage should be supplied; but it is just as well to give it at one time.

An Unusually Good Report from a City Apiary

I began with five colonies. I have sold honey to the value of \$45.75. Honey for home use, \$20.00. Sold the increase for \$20.00. Total income for the season, \$85.75. Expenditure was \$20.00. Net gain, \$65.75, or \$13.05 per colony, spring count, and this on a city lot 40 feet wide.

Des Moines, Ia.

R. R. C. Grantham.

[Lest some beginner should think that such a record is always possible, perhaps we should add that Mr. Grantham has gone far beyond the average, almost the record, we should say, from a city apiary.—Ed.]

The First Flight in the Midst of a High Wind.

My bees had their first flight January 21; and because of a very strong south wind many of them were unable to get back to the hive, and so were chilled to death. The ground in front of each hive was covered. There are about forty hives in my apiary, so you can see the loss was great.

Sheldon, Ill., Feb. 11. C. L. McNealy.

Honey Necessary even for Prepared Paste

I see by Stray Straws that Dr. Miller has trouble in making labels stay on 5-lb. pails. A home-made paste with a little honey added will make it stick, but it will sour and mold under the label, and so is not very satisfactory.

The best thing I have found so far is a paste made by the National Can Co., which is made for labels, and which they say will stick to tin; but it would not always stick for me, however, until I added a little honey to it. It will not sour or mold, even after the honey is added, and will always stay. About a tablespoonful of honey is added, and if, upon trial, it will not stick, a little more honey is added. To make a label that goes half way around a can stick is a different proposition from one that goes all the way around, and the ends lap, or a label on glass when almost anything will stick.

Grosvenordale, Ct.

Ernest Ryant.

A Good Paste for Labeling Tin

To make one cup of paste, melt a piece of glue about the size of a medium hazlenut, or two white beans. Next stir in a large tablespoonful of wheat flour. Mix in cold water, then bring it to a boil and stir. We never had this fail or come off. But if too much glue is used the label will get stiff and peel off.

The greatest tool ever used to clean frames, hives, and sections, is Dr. Miller's large overgrown putty-knife, or piece of a handsaw, two to three inches wide. But I have been waiting ten or fifteen years for some one to tell how to sharpen the edge. The old shoemaker's way of dulling his steel for scraping soles is simply to put it in the vise and rub the edge heavily until the corners turn over, making a flatter edge. It works best in cool weather. This tool will keep right on to the wood, and will plane the very varnish off, and will not lead into the wood. Try it.

Listowel, Ont., Can.

C. Mitchell.

Another Paste for Labeling Tin

To make paste sufficient for 30 or 40 labels, take about four tablespoonfuls of cold water, a small pinch of saleratus, and a lump of laundry starch about the size of a large walnut, and dissolve them together; then put them on the stove and cook to a paste. Use paste while warm, and you will have no trouble about labels coming off.

Ticonderoga, N. Y. George H. Adkins.

Wash the Tin with Soda

Tell your readers that they will have no trouble having labels stick to tin if they will first wash the tin with strong soda water, and then use good mucilage.

Forkville, Pa.

W. L. Norton.

94 Pounds Per

Mrs. Allen, page 969, Dec. 1, 1915, speaks of the average yield per colony in North Carolina being very low, and the quality being nothing to boast of. Yes, that is the general cry; but I think I did pretty well for a poor season. I got an average yield of 94 lbs. per colony of honey that sold for 18 and 20 cents per lb. (this was comb honey) and an increase of a little over 57 per cent. Our main honey-flow, the sourwood, was a complete failure.

Hazel V. Boukemyer.

Randleman, N. C.

Blessing in Disguise, after All

I had muscular rheumatism in my right leg and arm, and so much that for two years I took electric treatments. My trouble would come and go—come so hard sometimes that I limped when walking, and my shoulder would ache so that I could not sleep nights.

The first year I had bees I was not troubled so much, the second year less, and so on until now for over two years I have had no trouble with it at all. I think that the stinging of the bees counteracted the poison that was in my system—any way, it is gone, and I assure you I had plenty of stings to do it, for the bees certainly got at me in good shape.

Rutland, Vt.

J. H. Davenport.

Eucalyptus Tempting even in Bad Weather

My bees have been carrying in both honey and pollen every bright day all autumn and winter, and they even fly out into the rain and try to work, as a number of eucalyptus-trees are in bloom, and it is a great temptation to them. I am sure that I am losing quite a number from this cause, but see no way of preventing it. I can catch the odor of new honey when near the hives.

Millbrae, Cal.

W. O. Graeber.

A Prayer

My Father, I thank thee for this day

Wherein a task was set for me,
That I might labor, and in my way
Share the blessings sent by thee.

My work may seem quite humble, Lord,

To those who do not understand;
For I care not for worldly hoard,
Nor noted fame throughout the land.

O Father! I'm content with these—

My simple home, my garden-plot,
And daily care I give my bees—

Dear Lord, I thank thee for my lot.

Elsa Rosalind Howell.

Indianapolis, Ind.

[This prayer was written by a little girl and was sent to Gleanings by Walter S. Powder. We are very glad to give it a place here.—Ed.]

A. I. Root

OUR HOMES

Editor

EVOLUTION AND THE HONEYBEE; SOMETHING FROM ONE WHO IS NOT A BEEKEEPER.

As a rule I do not think it best to give very much space to theories in place of practice; but the following kind letter from one who has never kept bees commends itself, as it brings before us once more matters so much discussed years ago when the Dzierzon theory first came out.

The writer is nearly 55 years young, and has preached the gospel 36 years. Early in life he heard in New Zealand a course of lectures on "World-making," by a noted scientist. He saw them ably reviewed. I have ever kept an open mind, adopting the following as a principle of action in life:

Listen, read—not to contradict or confute, nor to believe and take for granted, but to weigh and consider.

I have occasionally seen GLEANINGS. Yesterday I ate with a beeman. Of course we talked bees, read some after you, and, as usual, liked you for your writings. I decided to write to you. You can set me right if I am wrong. Assure me in my belief if I am right. I am interested in my problem because of its far-reaching meaning, as it touches the problem of the universe, of man and destiny.

I put it in the following form as the plainest and simplest one I know.

1. Bees are of three kinds—father bees, mother bees, and worker bees. (I do not pretend this to be accurate, but only for the purpose of this problem.)

2. Neither parent bee ever makes cells or gathers honey. (Is this quite true?)

3. Those which make cells and gather honey never become parents of young bees.

4. As those who have had experience in the work of making cells and honey never become parents, whatever experience they may acquire is lost in their death. It is never transmitted, there being no offspring from them.

5. Father bees, mother bees, parent bees, having no experience in making cells and gathering honey cannot transmit to their offspring what they have not got. What they do transmit is natural, not acquired.

6. The first bees that ever were must have had just as much ability as the present generations.

7. The first bees must have been created, and so the evolution of bees is impossible.

8. If these premises are correct, then this is a clear fact in nature, unaccounted for by the hypothesis of evolution; for then the bee must have been a direct creation.

My question now addressed to you as an expert beeman is to know whether it is true that the parent bees never work, never make cells, and never gather honey.

In other words, is it true that the transmission of acquired tendencies is impossible?

In asking you for a reply I am not looking for an extended letter. I know you are busy; but a few words from you will be very gratefully received. This I ask in a private letter rather than in your paper. I see GLEANINGS but rarely, not being myself a beeman.

H. GOODACRE.

Wolcott, Ind., July 26.

After reading the letter I submitted it to Ernest, who advised sending it to Dr. Miller, and asking for his reply. Below is Dr. Miller's answer:

The drones do no work of any kind in the hive, neither do they gather anything outside. The same

is true of the queen, except that she lays eggs. That is her sole function. So it is quite true that "the parent bees never work, never make cells, nor gather honey," with one slight exception. It happens in rare cases that a worker lays eggs, which never produce anything but drones, in which case that parent does all the work that any worker does. Yet that can hardly be said to have any bearing on the case, since practically that laying worker has no progeny, and so can transmit nothing.

So, on the face of it it would seem according to reason to conclude that the parent bees, having no experience in the work of the hive, can transmit nothing different from what they received from their parents, and that "the first bees that ever were must have had just as much ability as the present generation," or, in other words, that all honeybees to-day are exactly the same as the first bees, and that all are exactly alike.

Against any such reasoning, however, stands the very troublesome fact that bees are not by any means alike, and that there is just as much difference among bees as among folks. They differ in temper, in color, in habits, in diligence—in fact, name any difference that may be between two members of the human family, and it is likely that a difference in the same respect may be found among bees. Moreover, that difference is transmitted. Rear queens from the queen of a very cross colony, and you will have cross colonies resulting. So with other traits.

So against the *theory* that a queen cannot transmit, we have the *fact* that she *does* transmit.

Not being a scientist, but only a practical beekeeper, it might seem presumptuous in me to attempt to explain how a parent can transmit something that apparently is possessed only by her children. But there is no law against giving my guess. Take the one matter of temper. A colony may be so irritated by rough treatment or in some other way as to become very cross. Is it beyond belief that the queen may share that same irritable feeling, and transmit it not only to her worker progeny but also to her royal offspring? If that be true, then it may also be true that if any change takes place among the workers, that change may in some subtle way have such an influence upon the queen that a trait acquired by the workers of her colony may be transmitted by her to her royal offspring.

I am inclined to the belief that the first colony of bees was a direct creation, but it can hardly be proven in the manner suggested.

Is any of this of practical importance? Surely—of vast importance to the practical beekeeper. The beekeeper who believes no acquired trait can be transmitted by the queen will make no effort to improve his stock, although, strangely enough, he may thoroughly believe that bees will "run out." The one who believes that the queen can transmit acquired as well as inherited traits, good as well as bad, will be making constant improvement in his bees, and his slogan will be, "Breed from the best."

Marengo, Ill.

C. C. MILLER.

I am not sure that I entirely agree with my good friend Dr. Miller—for instance, in regard to cross bees. A colony that is handled almost every day, and properly handled, will, I feel sure, become so accustomed to it that they take it as a matter of course, and after awhile they will hardly stop work. In fact, the queen will keep right on laying. But take an apiary that

has been neglected, even though it has good movable-comb hives, and if you try to open it without smoke you will have trouble, and perhaps trouble even with smoke. I appeal to beekeepers as to whether I am right or not. And I have been of the opinion that queens do not transmit irritability. At one of our Chautauqua gatherings a speaker of note said that mankind transmits physical qualities but not mental; and he gave some pretty strong facts to support his assertion. Our great inventors and men of great education are frequently from parents who have shown no great mental powers in either direction. He asked us if this was not true. This hits on the old question as to whether it is environment or inherited tendencies that make a man good or bad. We can do very much, and the whole wide world is doing much, to help environment; but we cannot very well help the other *after* people are born.

SHALL THE UNITED STATES INVEST MILLIONS IN ANTICIPATION OF WAR?

On page 42, January 1, I said I *might* change my mind in regard to the above; but at this date, March 1, I have not changed it, and I have done a great amount of reading in order to keep fully posted. I hope every one of our readers will have a chance to read Henry Ford's articles which he is to have placed in the advertising columns of many periodicals.

We clip below from the *New York Evening Journal*:

The very men who pile up the armament of all nations—and it is true that the same firm will often arm both sides in a conflict—will find an enemy for any country they arm. And they will arm that enemy, too, for the profits on arms are great, and the industry is a monopoly.

We ought to realize that it is the people who not only pay the bills of these munitions makers, but pay the penalty also in the death and misery the use of these arms must bring.

The following from the *New York Times* of February 9, printed prominently by the *Times*, but not conspicuously treated by the great majority of city newspapers, give some idea of the facts:

WASHINGTON, February 8.—Testimony that pleased the pacifist element in the House was furnished to the Committees on Military and Naval Affairs today by General Nelson A. Miles, U. S. A., retired, and Rear Admiral Victor Blue, Chief of the Bureau of Navigation. General Miles said he did not fear an invasion of the United States, and that an invader Admiral Blue declared the navy was now ready to meet any enemy it might be called upon to encounter in the Pacific.

I am having this statement printed in the advertising columns of newspapers and magazines throughout the United States. Others will follow. I have no other purpose than to save America from bloodshed and its young men from conscription. I feel that if this militaristic burden is assumed by the country, the United States within ten years will be

in turmoil, its industries paralyzed, and its men, instead of being at work in peaceful industry, will be dying in trenches. And I feel, too, that these men will not be dying to defend their country, as we are now being told, but will perish in the conquest of other men who have a right to live in happiness and peace.

I am hoping and praying that Henry Ford and Billy Sunday may get in touch, and that God may be enabled to use *both* in hastening "the coming of his kingdom."

So good an authority as Prof. Harvey W. Wiley has the following in *Good House-keeping* for March, in regard to saving life instead of taking it:

Do we really want to live? As I mingle with my fellow-men I begin to doubt it. Our conversation is of war, commerce, society, music, clothes, athletics, Congress, preparedness, taxation, occasionally of books, and once in a long while of life. That which is dearest to us we apparently think least about. Where one man is studying how to prolong life, thousands are seeking means to put a speedy end to it. The advisory committee to the Secretary of the Navy has suggested building a laboratory costing five million dollars, and equipping and manning it, which would probably take about as much more. Its purpose is to study the best methods of killing our fellow-men from other countries, and preventing our own sailors and citizens from being killed. I am not inclined to protest against this action, but merely to ask, What of guarding against disease and preventing the half-million of preventable deaths every year? Who will provide the five million dollars for that? Ten dollars used for prevention will save a life.

God hasten the time when the whole wide world shall discover how much better it is to *preserve* life than to destroy it; and not only physical life, but the kind the dear Savior had in mind when he said, "I am come that they might have life, and that they might have it more abundantly."—JOHN 10:10.

PREPAREDNESS; BRYAN SUGGESTS MILLIONS FOR GOOD ROADS INSTEAD OF MILLIONS FOR MUNITIONS.

The following, clipped from the *Times-Union*, is a part of Bryan's address delivered at Tallahassee, Feb. 29.

Scoring those preparedness advocates who think the country must spend billions upon billions immediately, Mr. Bryan said: "There are two organizations in this country which together claim a monopoly on all the patriotism of the nation. They have taken upon themselves the task of getting the country ready for war. The Security League says, spend three hundred millions a year on the navy and one hundred and fifty millions on the army. The Navy League is older, has more ciphers at its disposal, and had the advantage of making its bid after the bid of the other had been known. It insists that five hundred million is necessary for the army each year, and that a standing army of one million men is an absolute necessity. This program would cost about \$750,000,000 yearly.

"If we are so near war, as the jingoes claim, then let us get ready by preparing our roads. Get them in condition so we can transport our armies from one place to another without delay. It will greatly increase our defensive power by being able to mo-

bilize quickly and transport it rapidly to the point threatened. And there is an advantage about this kind of preparedness; if, after we have prepared ourselves and the war does not come, we shall be able to make good use of the preparation on the work of production. If, however, we divert the money from useful channels and spend it all on battleships and arms and ammunition, we shall have wasted our money if the war does not come; and if it does come, chances are that before it comes changes in warfare will very much reduce the value of preparations in which we have invested.

"We cannot single out a nation and begin to prepare to fight it without cultivating unfriendliness toward that nation, and we cannot make hatred a nation's policy for a generation without having our people anxious to fight as soon as they are ready to fight. If the nations at war had spent in the cultivation of friendship but a small percentage of the amount they have spent in stirring up hatred, there would be no war in Europe today. We should not transplant upon American soil this tree of hatred unless we are prepared to eat of the fruits of the tree, for it has been bearing its bloody fruit thruout the years."

WAR, WHAT IS IT?

Years ago, when I had one of the first automobiles built, down in southern Ohio, while on the road away from any town, my machine suddenly gave out. A thunderstorm was coming on. There was neither time nor place, even if I had the tools, to take the machine to pieces and find the trouble. A heavy peal of thunder reminded me something would have to be done, and that quickly. My little prayer, "Lord, help," welled up of itself. Then I discovered the machine would go backward, even if it would not go forward. By going backward I got into a nearby town and in the shelter of a blacksmith shop just as the big drops began to patter on the roof. There was no repair shop in the town, and the blacksmith said there was only one man in the village who could tackle a disabled automobile, and he had just gathered up his tools and gone down to catch a train to take him back to his home in Columbus. Somebody lent me an umbrella and I caught the man just as he was stepping on the train. He and his brother went back to the blacksmith shop, pulled my machine all to pieces, found the break, and put it in order. You may be sure I thanked the great Father for helping me to get under shelter just in the nick of time, and then again to secure the only competent mechanic just in time—the man who *happened* to be there just by accident.

But what has all of this to do with our present war? Well, just this: It illustrates how important it is to find some one just in the nick of time, a skilled expert, if you choose, in mechanical work, especially for a stranger in a strange land. What a boon to humanity it is to run across ex-

perts, even mechanics! Now try to think how much greater it is to be able to get experienced surgeons and physicians, when the human machine happens to be suddenly marred or thrown out of commission. The Red Cross organization is now trying to place skilled doctors where human beings are torn and lacerated in this wicked war. A little pamphlet comes through the mails entitled "Wounded. By Arnold Bennett;" and to give you a better understanding than you have had before of what *war is*, I am going to make some extracts.

The primary object of this war and of all wars is to lacerate human flesh, to break bones, to inflict torture, to paralyze, and to kill. Every army in the field to-day is out for maiming and homicide, and nothing else.

We do not see a thousand prisoners led away in despair, nor a thousand decaying corpses lying in strange, contorted attitudes on the ground, nor eight thousand tortured, bleeding men, whose torn and pierced bodies have in a few moments exuded hogsheads of blood. You protest that I ought not to use such a phrase as "hogsheads of blood"—it sickens you. And why should you not be sickened? Those hogsheads of blood, lacerated limbs, smashed bones, glazing eyes, screams of pain, are exactly what we all in every country asked for when we voted supplies.

The shrapnel rips, tears, lacerates, and penetrates the human tissues in a horrible manner, and our work consists in repairing and making good as best we can. Our best, alas! is too often of little avail in the face of the anatomic devastation produced. One man, for instance, had his lower jaw shattered to a pulp, and his tongue cloven in two. Another man had his skull smashed, and his brain welling over his face. Another is made completely blind. Another has the front of his abdomen ripped open, and his bowels protrude. Another has a knee joint blown open, a hand smashed, an ankle shattered, and so on and so on. One could multiply and enumerate without end.

The wounded man has suffered a horrible and tragic disappointment, for he, like every soldier, hoped to escape damage; very probably this hope amounted to a belief. He knows that he has done his duty, and the mere fact that he is wounded proves that he has affronted risks. But he knows also that he is useless, for the time being, if not for life. He knows that he is only in the way, a dead weight, a source of possible danger, a drag on the operations. Further, his mind is perhaps perturbed by sudden anxieties about his family. Lastly, he is in great pain, he is acutely enfeebled, and he is helpless. If ever a human being needed comfort, special attention, and the full aid of medical science, apparatus, and highly skilled nursing—if ever a human being needed to feel that he was the center and chief object of all activities in his neighborhood—the wounded man is that human being.

But on the other hand, the army, like the wounded man, knows that the wounded man is useless and a dead weight. The army cannot help wishing that it might be freed of the immense incubus of its wounded.

"At once they rallied and forced us back, and now it was our turn to lose heavily. That was nearly three weeks ago, and since then the ground over which we fought has been debatable ground, lying between our lines and the enemy's lines—a stretch four miles long and half a mile wide that is carpeted with bodies of dead men. They weren't all dead at first. For two days and two nights our men in the earthworks heard the cries of those who

still lived, and the sound of them almost drove them mad. "There was no reaching the wounded."

Nobody deserves succor as a wounded man deserves it. His need is a thousand times greater than that of the average person for whose benefit the National Relief Fund was established.

In the last paragraph quoted above, suppose we read it, "is now a thousand times

greater than that of any automobile or any number of automobiles on the face of the earth." Shall we not do all we can to assist the armies or army of the Red Cross, and at the same time stop the foolish and wicked waste of human life caused by the war?

HIGH-PRESSURE GARDENING

SELECTING SEED CORN; A NEW WRINKLE.

For the past two seasons I have gone into the field and selected ears for seed, and placed them near a furnace in the cellar, where they would always be warm and dry. Well, when I tested each ear before planting time *every ear* gave good germination. Right here comes a suggestion from *The Independent Farmer*, Lincoln, Neb. Before you take the time to test each ear, do this: Say you have 100 select ears. Shell four or five grains from each ear, and mix them all up. Now sprout the lot, between dampened cloths (or any other way); and if *every kernel* germinates satisfactorily there is no need of the expensive single-ear test. One who has had practice can, in a field of good corn, select 100 ears with seldom a poor one.

JUST WHAT I HAVE BEEN EXPECTING.

That the boys of a dozen or more years, in our corn clubs, would be teaching their old fathers. See the following clipped from the *Plain Dealer*:

Statistics compiled from the records of the past years show the boys found large profits in their corn contests. The showing is given as illustrating the possible profit to be made from growing corn. On that subject Clark says:

"The average number of bushels raised per acre by the junior corn-growers in 1915 was eighty bushels. The average cost of raising was 25 cents a bushel. If the selling price were 60 cents a bushel, then the \$48 receipts, less the \$20 cost of raising, would be the net profit of \$28 per acre of each acre of corn. The men in Ohio raised an average of 38.8 bushels per acre, and no one knows what their expenses were, neither their losses nor profits."

In some countries *senior* corn contests have been started among the grown men. The contests of the boys have started the men into the game actively.

ROSELLE OR JAMAICA SORREL.

In addition to what I have said about the above, see the following from the *Florida Grower*. Our plants are now (Jan. 24) starting on a second crop.

We call it Florida cranberry. It is far better and far more useful than the cranberry. Some call it "lemonade plant," because it makes a drink similar to lemonade. Another name for it is Jamaica sorrel. But it matters not by what name you know it, I am sure it will become one of the most useful and profitable crops grown in Florida. A friend writes from

California that they often realize \$1000 per acre there for this fruit. I say if they make \$1000 off an acre in California, where they have their water to buy, what ought we not to make here, where conditions every way are so much more favorable? We have 15 plants scattered promiscuously around "Eukalypta Kabin," that came up voluntarily last spring. From these 15 plants we have sold and given away more than fifteen dollars' worth of products; besides, more than half the pods were left for seed, and the third crop is now coming on. The end is not yet. We shall be glad to tell your readers how we come out. We are sufficiently encouraged to try an acre or two this year. Mr. King, the canning man, at Fort Meade, says he will be pleased to contract now for all he can utilize next fall and winter at 12½ cents per pound. Think of it! Another gold-mine about to be discovered! When Florida is discovered, won't it be a great country? When you want the prettiest and best in jelly, jam, marmalade, sauce, pies, drink (better than grape-juice), just try Florida cranberries. "Tastes more."

R. J.

Note.—We have grown "Roselle," made jelly and "lemonade" from it; also used it as cranberry jelly is used with meats, and it is very fine. The only question is in creating a market for it. That done, a profit is assured, for the cost is little.

AN ALIGHTING BOARD MADE OF CLOTH.

I wish to ask your opinion of a new device for an alighting-board—an awning like wire frame covered with various-colored cloth, the cloth a single thickness kept tight by a spring on the under side. The wire frame springs into an adjustable holder on the outside edge of the bottom-board. Advantages? Well, one of the chief ones is the comfort of the laden bee, as she returns weary from her flight. Did you ever observe their hesitation as the dreading to drop on the hard board? Further, this thin cloth would be cooler in the summer and warmer in the winter than the wood. It would not hold puddles of water during rainy weather. Cloth of various colors could be used. The number of the colony could be marked on the cloth.

Mantua, O., Feb. 28.

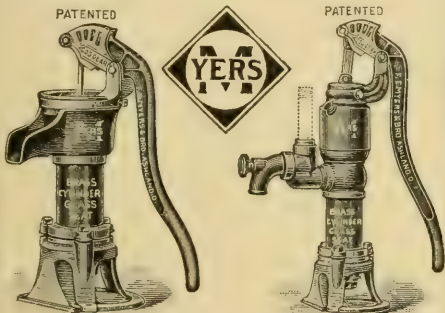
D. B. HUSTED.

Years ago I had a cloth alighting-board; but it flopped about so much when it was windy I was compelled to give it up. The wire springs mentioned in the above would surely fix that. Just this very morning, when the bees were rushing out to work on the orange bloom, there was a puddle of water on the painted alighting-board, caused by the damp breath of the rousing colony, and many bees were soaked and disabled as they tried to get out very early. Will our friend mail us his device, that we may illustrate it?

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Every housewife would be proud of her kitchen if she had a MYERS HOUSE-PUMP. They are handsomely finished and harmonize nicely with the finest surroundings. They are very easy to operate on account of the Patented Cog Gear Head. Ease of operation is an important feature, especially when the pump is much used by women.

We have a beautifully colored circular showing Myers House Pumps in their actual colors, and will send one at your request.



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Three-band and Golden Italians

The Secret of Success

in beekeeping is to keep your colonies strong. To do this you must have good healthy laying queens.

1 untested queen, \$1.00; 6 for \$5.00; 12 for \$9.00.
1 tested queen, \$1.50; 6 for \$8.00; 12 for \$15.00.
½ lb. bees with untested queen, \$2.50; tested, \$3.00.
1 lb. bees with untested queen, \$3.50; tested, \$4.00.
1-fr. nucleus with untested queen, \$3.00; tested, \$3.50.
2-fr. nucleus with untested queen, \$4.00; tested, \$4.50.
If more frames are wanted than we list, add \$1.00 each per frame wanted to above prices.

Satisfaction guaranteed

W. J. LITTLEFIELD

618 W. Seventh St. Little Rock, Ark.

Yes, "By their fruits ye shall know them," and that is why I have recommended your queens. Where European foul brood is found, the stock proves itself disease-resisting as well as or better than any other we have tested. When a beekeeper having a good apiary where European foul brood was taking the apiary when inspected, and he told me, after testing your queens, he would not take \$25.00 for the last queen you sent him, it speaks for itself. His apiary, now cured, is proof of the pudding.
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Queens and Bees

Three-banded Italians.
Bred for honey and gentleness.

	1	6	12
Untested	\$.75	\$4.25	\$ 8.00
Select Untested ...	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00

Bees in 1-lb packages, \$1.25, without queen.
If wanted with queen, add price. Perfect satisfaction and safe delivery guaranteed.

N. Forehand, Fort Deposit, Ala.

Italian Queens --- Three-banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$2.00 each; \$20.00 per dozen. Breeding queens, \$5.00 each. Special prices on large orders. Our customers must be pleased. Safe arrival guaranteed. Send check with orders to

J. W. Taylor & Son, Beeville, Bee Co., Texas
Prices on nuclei on request.

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, \$1.00; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

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Dr. Miller's Strain of Italians

We have made arrangements with Dr. C. C. Miller to furnish us breeders, and therefore offer you the finest queens reared from the best stock on earth, as Dr. Miller holds the world's record for an apiary of more than 70 colonies having averaged 266 sections weighing 244 pounds. These are not queens bred from a mother that has produced one good yield, but it has been bred in them for generations until their honey-gathering is a fixed quality. In GLEANINGS, p. 788, Editor Root says, "Those queens (DR. MILLER'S) ought to be worth \$10 to \$25 each."

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

Marengo, Ill., Mar. 1, '16. C. C. Miller.

Virgins, 50 cts.; untested, \$1.50; tested, June, \$2.50. Breeders, August, \$5 to \$10. Bees, our strain, 1 lb., \$1.50; 2 lbs., \$2.50; nuclei, 1-frame, \$1.25; 2-frame, \$2.25; 3-frame, \$3.25; 8-frame colony, \$6.00; 10-frame colony, \$7.00.

Prices do not include queens.

Queens, our strain, 75 cts. each.

Satisfaction guaranteed as well as safe arrival.

200 colonies in 10-frame hives at \$6 each.

Orders filled in rotation; deliveries will be made as promptly as possible after about April 15. One thousand mating nuclei.

The Stover Apiaries, Mayhew, Miss.

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Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

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Bees by the Pound

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**Three-banded Italian Bees and Queens
Bred for Honey Production**

Price List for Swarms of Bees in Packages ready to ship now.

1-lb. swarms, \$1.25; 2-lb. swarms, \$2.35; 3-lb. swarms, \$3.35; 5-lb. swarms, \$5.35.

If queens are wanted, add price as according to price list.

On lots of five packages or more we will prepay express to your address east of the Dakota, Nebraska, Colorado, and Texas lines, and south of the Canadian boundary. This applies only on orders received in April.

Price List of Queens by Return Mail

Untested, 75 cts.; Select Untested, 90 cts.; Tested, \$1.25; Select Tested, \$1.50.

**All queens warranted purely mated.
Wings clipped free of charge.**

Our queens are bred from *Select Honey-gathering Stock*, the choice of over 1000 hustling honey-producing colonies that produce about two solid cars of honey annually. All orders for either bees in packages or queens will be filled promptly by return mail or express, or as per booking. *There will be absolutely no delay.* We take only as many orders as we can fill and do so promptly. Let us have your orders and get your bees on time, or your money back by return mail. Our capacity is 100 1-lb. swarms a day and 6000 queens a year. We have no disease of any kind. Safe arrival and satisfaction we guarantee. Write for prices on wholesale quantities.

M. C. BERRY & CO., Hayneville, Ala.

Successors to Brown & Berry,
Largest shippers of young Italian bees
in the South.

Do You Need a Queen for that Queenless Colony?

We can furnish tested Italian queens by return mail, \$1.00 each. These queens are not cull nor inferior in any way because they are cheap. They were reared last September and October, and wintered in four-frame nuclei expressly for our early spring trade in tested queens. We expect to have untested queens ready to mail about April 10; \$1.00 for single queen; \$9.00 per dozen. We began rearing queens for sale in 1886. Our strain of three-banded Italians is well known to leading beekeepers. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. We solicit your orders.

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I furnish a full colony of Italian bees in a complete new 8-frame Dovetailed hive for \$10.50; an S-frame chaff hive, \$12.50; a 10-frame chaff hive, \$14.00. This price includes a tested Italian queen. Catalog of bees and supplies free.

**I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apicaries, Glen Cove, L. I.**

Archdekin's Fine Italian Queens---3-banded

Prolific, Hardy, Gentle. They are Persistent, Profitable, Producers. None better.

Prices	Before July 1			After July 1		
	1	6	12	1	6	12
Untested	1.00	\$5.00	\$9.00	.75	\$4.00	\$7.00
Tested	1.50	8.00	15.00	1.00	5.50	10.00
Select tested . . .	2.00	10.00	18.00	1.50	8.00	15.00
2-frame nuclei . .	2.50	14.00	26.00	2.25	12.00	22.00
1-lb. pack. bees .	1.50	13.00	25.00	1.25	7.00	13.00
2-lb. pack. bees .	2.50	14.50	28.00			

Above prices of nuclei and packages do not include queen. Add price of queen wanted. Satisfaction and safe arrival guaranteed. Absolutely no disease in this country. Get your order in early, and secure prompt delivery. Orders booked if half of amount accompanies order. Queens ready April 15. Nuclei and packages May 1.

J. F. ARCHDEKIN, Bordlonville, Louisiana

Three-band Italian Queens

They are bred from imported mothers.

They are the best for honey-producing purpose; very gentle, and not inclined to swarm. If you buy once you will buy always.

GUARANTEE that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.

All orders filled at once.

PRICES --- April 1 to July 1

Untested	one, \$0.75; six, \$4.25; doz., \$8.00
Select Untested . .	.90 5.00 9.00
Tested	1.25 7.00 13.00
Select tested . . .	2.00 11.00 20.00

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ITALIAN QUEENS THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

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Italian Queens with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

Candy for WINTER STORES

Why not be sure your bees have enough for winter by giving each colony one or two plates of candy? We have it in large paper plates weighing about two pounds, enough to last a colony three or four weeks. Can be sent by post. Write for prices, also catalog of supplies.

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It takes drudgery out of garden work, and gets bigger, better crops besides. Fully guaranteed.

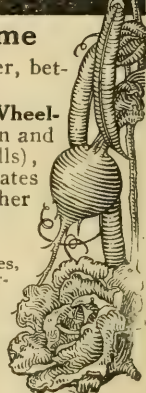
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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
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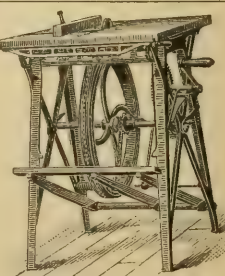
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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Choice well-ripened clover honey in 60-lb. cans, quality guaranteed. J. F. MOORE, Tiffin, Ohio.

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A blend of white clover and fall honey, one-third clover. Send 10 cts. for sample. Will be applied on order. FRED BRIGGS, New Sharon, Iowa.

Amber honey, $7\frac{1}{4}$ cts. per lb.; sage honey, $8\frac{1}{2}$; clover honey, 10 cts. per lb. in 60-lb. cans. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—White-clover honey in 60-lb. cans, packed two to the case, now granulated, at 9 cts. per lb. J. E. HARRIS, Morristown, Tenn.

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Best flavor alfalfa-sweet-clover honey; 2 60-lb. cans, \$9.50, f. o. b. here; delivered west of Chicago at 9 cts. a pound. WESLEY FOSTER, Boulder, Col.

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RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 per can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

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Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, O.

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SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog. W. N. SCARFF, New Carlisle, Ohio.

Seed Oats and Potatoes. Pedigreed 7009, 60-day oats. Very early. Heavy yielding. \$1 per bu.; 10 bu., 75c. Hill selected Sir Walter Raleigh potatoes, \$1.50 per bu.; 10 bu., \$1.35; 25 bu., \$1.25, f. o. b. Medina. Sacks free. ABBOTT & BAIRD, Medina, O.

CHEESE.—Swiss, 5 pounds, \$1.40; brick, 5 1/2 pounds, \$1.15; American, 5 pounds, \$1.15; Limburger, 4 pounds, 85 cts. Ask your postmaster what the postage is on 6 pounds to your city, and add postage to the above amount, and get some real cheese.
E. B. ROSA, Monroe, Wis.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Three-band Italian queens, \$1.00 each; \$9.00 a doz. EDITH M. PHELPS, Binghamton, East End, N. Y.

FOR SALE.—Well-wintered bees. Hoffman's wired frames. JULIUS GENTZ, Wabeno, Wis.

Italian queen-bees, \$1.00 each; tested, \$1.50. J. B. CASE, Port Orange, Fla.

FOR SALE.—20 strong healthy colonies of bees. T. O'DONNELL, JR., 815 S. Kildare Av., Chicago, Ill.

FOR SALE.—140 colonies well-kept bees, on good alfalfa locations; also 50 extra hives. FRED FREISE, Los Banos, Cal.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

Mt. Hamilton Apiary. Italian Queens. Untested, 75 cts.; tested, \$1.50 and up. CHAS. WOHL, 360 N. Lincoln Ave., San Jose, Cal.

FOR SALE.—We offer to some one in this or a near-by state, 50 to 300 colonies, 8-frame, first class. THE E. F. ATWATER CO., Meridian, Idaho.

Three-band vigorous Italian queens, "Mendelian" bred. Untested, \$1.00; tested, \$1.50; breeders, \$5.00 and \$10.00. CHAS. W. QUINN, Fort Myers, Fla.

Doolittle and Clark Breeding Queens ready for delivery May 1. Prices, \$10, \$5, \$2.50. Untested queens in June. Marietta, N. Y.

FOR SALE.—Fine opportunity for beginner. Strong colony of bees, extra hive, and other supplies. Italian strain. Make best offer. RUDOLPH AEBERLE, Ridgewood, N. J.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Golden Italian queens about May 1. Select tested, \$1.25; tested, \$1.00; untested, 70 cts.; dozen, \$8.00; select untested, 80 cts.; dozen, \$9.00. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Order queens now for March and April delivery. Three-banded Italians, the business bee; untested queens, \$1.00 each, fully guaranteed; no disease. M. F. PERRY, Bradentown, Fla.

Ready now, best Italian bees, 1 lb., \$1.00; untested queen, 65 cts.; two-frame nucleus with queen, \$2.25. J. B. MARSHALL, Rosedale Apiaries, Big Bend, La.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Guaranteed to please or your money back. Circular free. J. I. BANKS, Lowelltown, Tenn.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. 1/2-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

FOR SALE.—Young laying queens, ready to mail, 1 to 100, 60 cts. each. Clean bill of health; 33 years' experience among bees. B. J. COLE, Fertilla, Cal.

Golden and three-banded Italians. Untested, 85 cts.; tested, \$1.25. Bees in packages, \$1.25 per lb. Satisfaction guaranteed.

D. L. DUTCHER, Bennington, Mich.

FOR SALE.—Six colonies Italians in 10-frame double-walled Buckeye or Protection hives; without supers. Root queens; \$60 for the lot, or \$12 each. J. F. ULRICH, Rutherford, N. J.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June 75 cts. each; 6 for \$4.25; 12 for \$8.00. For larger lots write CURD WALKER, Jellico, Tenn.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$5; 10-fr., \$6, with queen. HENRY SHAFER, 2860 Harrison Ave., Cincinnati, O.

Golden California Goldenes, 60 cts. each. We sell cheap, as we manufacture all of our own supplies. ALAMEDA APIARIES, 1042 Alameda Ave., San Jose, Cal. W. A. BARSTOW, Breeder.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1. G. W. MOON, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—In order to make room for early cells we are offering select tested queens for \$1.00 each if taken by April 15. These are young queens, reared late, last fall.

M. C. BERRY & Co., Hayneville, Ala.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted.

J. W. SHERMAN, Valdosta, Ga.

See our large ad. elsewhere in GLEANINGS. We prepay express on lots of 5 or more packages of bees with queens going to points east of the Dakota, Nebraska, Colorado, and Texas lines, and south of the Canadian boundary. Prompt delivery guaranteed.

M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—Early delivery of three-band Italian queens, pure mating, I guarantee. Any number for only 75 cts. each. These are bred from the best stock and by the best methods. No disease. We are better prepared than ever before to fill orders promptly.

W. D. ACHORD, Fitzpatrick, Ala.

A daughter of one of Dr. Miller's best honey queens, and the Beekeepers' Review for 1916 for only \$2.00. A daughter of one of the very best honey-getting queens selected from 1100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the Review for 1916 for only \$1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy.

Now booking orders for three-frame nuclei Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction.

S. G. CROCKER, JR., Roland Park, Md.

FOR SALE.—Bees in pkgs.; 2-lb. swarm, \$1.75; 3-lb. swarm, \$2.50. Untested Italian queens, 75 cts. each or \$8.00 per doz. Bees are free from disease, and we guarantee safe delivery.

IRISH & GRESSMAN, Jesup, Ga.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY CO., Haileybury, Ont.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

We want to tell you about our bees, quote our prices on queens and bees by the pound, and let you know the express rate from Brady to your station. Let us hear from you.

R. V. & M. C. STEARNS, Brady, Tex.

Three-banded Italians, ready after June 15. Will book your orders now with 10 per cent cash down. Queens, untested, 75 cts. each; \$8 per doz. Nuclei, 1-fr., \$1.50; 2-fr., \$2.25; 3-fr., \$3.00. Full colonies, \$7.00 each. EGGERS APIARIES CO., Rt. 1, Eau Claire, Wis.

FOR SALE.—400 colonies Moore strain bees in good location. Combs built on full sheets of foundation. Everything in first-class shape. Principal source of honey is alfalfa. Located in the Rio Grande Valley, under the largest irrigation project in the United States.

THE CROWN APIARIES, Mesilla Park, N. M.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 135, Buffalo, Tex.

QUEENS.—Italians exclusively; golden or leather-colored. One select, untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction guaranteed. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

The Beekeepers' Review, Northstar, Michigan, are buying combless bees in pound packages, with young untested queens in large quantities. By so doing they are getting inside prices, and they are giving their subscribers all the benefit of this close buy. Listen: Ten pound packages with queens for only \$16.00; 20 packages for only \$31.00. If you want two pound packages instead of the one, add 95 cts. to each package. They are shipped from the gulf states by express, direct to the purchaser.

FOR SALE.—Swarms of Italian bees in packages, 1 lb. of bees, \$1.50; 2 lbs. of bees, \$2.50; for 50 or more they are 12½ cts. less. Untested Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. No reduction on quantity of queens for April and May. Quality, service, safe delivery, and no disease, I guarantee. We spare no labor nor money to produce the best for you is why we cannot make a lower price. Early swarms get the honey. We can deliver the goods with pleasure to both of us.

W. D. ACHORD, Fitzpatrick, Ala.

The successful package-shipper and queen-breeder.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

BEES AND QUEENS.—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey-gatherers. We breed this stock only, and guarantee delivery only to points west of the Rocky Mountains. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100; tested queens, \$1.25 each; \$12 per dozen; \$85 per 100. Three-frame nuclei, \$2.25 each; \$200 per 100. Bees, ½-lb. packages, 75 cts. each; \$6.00 per 100; 1-lb. packages, \$1.00 each; \$85 per 100. Add price of queens to above packages. Complete catalog free on application. SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier, if necessary. Bees are all on standard Hoffman frames, and combs are all built on full sheets of foundation and wired frames. We guarantee bees to be free from disease.

THE HYDE BEE CO., Floresville, Tex.

HELP WANTED

WANTED.—Man to take charge of apiary, 200 hives, and assist in orchard work.

HAWTHORNE FARMS CO., Barrington, Ill.

WANTED.—Expert beekeeper to help in business of 1100 colonies. Work starts April 15. Good wages.

EARL HANKS, Hageman, Ida.

WANTED.—Young man with some experience in handling bees, to assist in large apiary, garden, etc.; married man preferred. Please give full particulars in first letter. W. D. WRIGHT, Altamont, N. Y.

WANTED.—Can take two clean minded and bodied young men as student help for the season of 1916. Board free for help given, and something more if a good season and help does well. One understanding an auto preferred. Address R. F. HOLTERMANN, Brantford, Ontario, Canada.

WANTED.—Robust western young man, of good habits, honest and industrious, at moderate wages and board, who has had some experience handling bees for extracted honey. State your case fully, give references, and wages expected in first letter.

IRA C. FARNEY, Mesilla Park, N. M.

WANTED.—Young man with a little experience; fast willing worker—a student helper in our large bee business of over 1000 colonies; crop last year over 105,000 lbs. Will give results of our long experience, and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer.

E. F. ATWATER, Meridian, Idaho.

SITUATIONS WANTED

WANTED.—Position in beekeeping. I have a diploma and 5 years' experience. Good references; apply at once.

JAMES A. MAINES, Nile, N. C.

WANTED.—Young man having ten years' experience with bees wants position with extensive beekeeper to learn more thoroughly the business. Please state wages and all particulars.

L. E. TURNER, Montrose, Minn.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00, return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN'S superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.
H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italians bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

TRADE NOTES

HONEY-EXTRACTORS.

If you contemplate buying a honey-extractor, better get your order in without delay or you are likely to pay more money for it. Most of the metal parts entering into its construction have doubled, or nearly doubled, in value during the past few months, and a new scale of prices will be in effect before very long.

BUCKWHEAT SEED.

We have a moderate supply of buckwheat seed, both Japanese and silverhull, which we offer while it lasts at \$1.50 per bushel; two-bushel bag for \$2.75; no charge for bag. If intending to sow, send in your order while the seed is available.

ALSIKE CLOVER SEED.

We still have a number of bushels of alsike clover seed, which we offer, subject to previous sale, at \$10.00 per bushel, with 25 cts. extra for bag to ship in. Any quantity from a peck up at this rate. Lot of two bushels or over, no extra for bags. It will not last long at this price. If you want some, better order promptly.

SWEET-CLOVER SEED.

We have a good supply of very choice hulled white-sweet-clover seed scarified for quick germination, requiring only 10 lbs. per acre for a good stand. We offer this for a short time to reduce stock at \$18.00 per 100 lbs. Now is the right time for sowing with a nurse crop to produce hay or bloom with seed next year. We have also choice hulled yellow which we will sell at \$15.00 per 100 lbs.

ADVANCING PRICES.

The upward movement in prices of materials has become so marked in many lines that we are compelled to figure out advanced prices on finished products, especially in metal goods, and new prices will be announced in the near future. To replace material on hand at present market prices would make the cost of the finished article so high that we should be unable to sell at the prices which have been in effect except at a loss in numerous cases. The best authorities on the situation maintain that, even if the great war closed now or in the near future, it will be several years before production overtakes demand for steel products, and that we must expect a period of several years of higher values.

A POSSIBLE SHORTAGE OF SECTIONS.

Two factories which formerly made sections, hives, and supplies generally, have been closed during the past few months by going into bankruptcy. The factories which remain will have their own trade to supply, and in addition will have to make up for the shortage caused by the closing of the two now idle. A recent investigation discloses the fact that there is a shortage of dry white basswood suitable for making one-piece sections, and the color of many turned

out during the next few weeks will be below the average. Stocks of manufactured sections are below normal for this time of year; and if the season turns out well there is prospect for a short supply. New lumber cut the past winter is usually not dry enough for use till late in May.

COMB-HONEY CARTONS ADVANCED.

Owing to a big advance in white-coated boxboard we are under the necessity of advancing the price of comb-honey cartons as listed in our catalog, both printed and plain, both styles, 75 cts. per 1000 retail, wholesale, and jobbing prices. This advance represents simply the increase in cost of stock at today's market price. Paper-makers are in a bad way for materials. This issue of GLEANINGS is delayed in mailing because a car of paper ordered in January for delivery by March 10 did not arrive till March 29, which delayed the printing about a week. The label catalogs we are now mailing quote advanced prices on most styles as well as on stationery and other printing. We are working out some new designs in labels to be included in a new edition of the label catalog in preparation.

COMB VS. EXTRACTED HONEY.

For several years previous to 1915 there seemed to be a shortage of choice comb honey and a plentiful supply of extracted. Market conditions at this time seem to indicate an oversupply of comb honey, whereas the available supply of extracted is being pretty well picked up, and there is not likely to be much left when the new crop is ready for market.

Well-ripened extracted honey does not deteriorate with age, and is just as available for use a year or two after production as it is during the first year. Because of the liability to granulate, it is not so easy to carry over comb honey. It is important, therefore, that there be no overproduction of comb honey if a steady market be maintained at a remunerative price. When comb honey granulates before it is used up its market value is reduced 50 to 100 per cent; and the one who owns it during the process of granulation is bound to lose money, and may also lose interest in handling an article subject to such deterioration. There ought to be some reliable method of regulating the relative production of comb and extracted so as to prevent an oversupply of comb. If in doubt, better produce extracted rather than comb. The consumption of extracted honey is on the increase, and we believe it will increase relatively faster than that of comb honey. If there should be an oversupply of extracted, and you store it well ripened, you can feel safe that it will not deteriorate, no matter what temperature it may be subjected to; whereas with comb honey if you can not dispose of it you must keep it in a warm even temperature to prevent granulation, and even then you may not succeed.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for sample of foundation from any mill in the list which may interest you.

No. 0153, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{2}$ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165, $2\frac{1}{2}$ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, $2\frac{1}{2}$ x 10 hexagonal light-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0230, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0231, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in fairly good condition. Price \$20.00.

No. 0233, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, $2\frac{1}{2}$ x 6 extra-thin-super mill in very good condition. Price \$12.00.

No. 0235, $2\frac{1}{2}$ x 10 hexagonal light-brood mill in good condition. Price \$22.00.

No. 0237, $2\frac{1}{2}$ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0241, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.

No. 0246, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

THE A. I. ROOT CO., MEDINA, O.

BILLY SUNDAY AND THE SALOON CROWD.

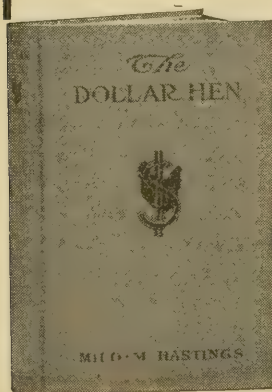
We clip the following (from Ridgway) in the "Busy Men's Corner" of the *Sunday School Times*:

Only this very day I have read an intemperate attack by a minister upon Billy Sunday—to the great joy of every saloon man in the town. This very same paper prints a list of saloons that have just lost their licenses thru this same Billy Sunday's stirring and searching evangelism. This Pennsylvania Pharisee would undoubtedly have heaved his rock at Stephen as joyfully as he stabs his pen into Billy. Billy Sunday draws thousands to strike the sawdust trail. These stone-throwing critics draw little beyond their salaries (Rev. 3:14-18). As I write we are busy fighting rum here in Pennsylvania. The saloon-keepers give us no anxiety. They are in front of us fighting their best. But our "good Christian temperance friends" give us our wounds. In fact, the saloon crowd is printing sermons by "Christian ministers" defending their cause.

The Dollar Hen

My opinion is that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up to date, and still fewer that pitch right into the superstitions and humbugs scattered thru all our poultry books and journals.—A. I. Root.

This book will be clubbed with GLEANINGS for one year at \$1.35; or, if you have already subscribed a year or more in advance you can have the book for 60 cents.



GLEANINGS
IN
BEE
CULTURE,
Medina,
Ohio

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication you want.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D

Town

State

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

"Next Door to Everything"

Reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

Clover looks most promising for the coming season, and it is the part of wise foresight to anticipate all possible requirements.

E. W. Peirce,

22 So. Third St. Zanesville, Ohio

To Advertisers of Bees and Queens

The following is addressed mainly to present or prospective advertisers of GLEANINGS IN BEE CULTURE who seek customers among the readers of our columns; and while it is addressed especially to those who wish to advertise bees or queens, it may apply in some respects to other advertisers as well. It is prepared in this form so that any one who receives it may understand that its application is general, and that he alone is not made the subject of special requirements or conditions not required or imposed on others.

The supplying of queen-bees, and to a less extent bees in colonies or nuclei or pound packages, is attended with a good many difficulties not readily understood by those who have not actually had one or more seasons' experience in this trade. To explain this, let us relate from our own experience as queen-breeders, and from the correspondence which reaches us both from our advertising friends and some subscribers to GLEANINGS who have ordered bees and queens from our advertisers or elsewhere.

At the beginning of a season a queen-breeder may have on hand a fairly good stock of queens; but having been reared very late the previous fall he has not had time to test. Another breeder may have on hand a quantity of tested queens, or perhaps a pretty liberal proportion of select tested, or a number of good breeding queens, worth anywhere from \$5.00 to \$10.00. Now, unless the advertiser is very explicit as to the stock on hand, and as to the probable dates when he will be able to begin deliveries, customers may be disappointed greatly in not being able to get the grade of queen wanted from a certain advertiser or on the date expected, and too much care cannot be taken to make the advertising clear and explicit. A number of new advertisers every year get into serious difficulty because their facilities for raising queens being limited, and the price quoted too low for safety they receive orders early in the season which they expect to be able to fill shortly, and accept the money for the same, hoping to supply the stock within a reasonable time. Unfavorable weather may ensue, and they find themselves unable to fulfill their plans, and their customers are indignant and demand their money returned. A good deal of this trouble, which often assumes pretty serious aspects, could be avoided by more care in the wording of the advertisements, occasionally by taking more space. We therefore caution our advertisers to be explicit in their promises as to grades and quantities, and dates when deliveries can be made; and we caution our readers to understand these things before placing orders. It is amazing to learn that beekeepers will order queens from points one or two thousand or more miles away in lots of fifty or a hundred or more, cash with order, without knowing these things. The compliment is appreciated by the publishers of GLEANINGS, showing the confidence in which our advertisers are held; but at the same time, where a small breeder will occasionally make very low prices to establish himself in the trade, careful discrimination should be made in the placing of large orders between the breeder with very limited experience or facilities, and those who have had years of experience and ample facilities for handling large orders. It would be unfair for the publishers to refuse space to a small but worthy queen-breeder simply because his output is very limited, for he may have some very fine stock, and it may be a decided advantage to those who are wanting only a few queens to get them from a small breeder at a moderate price. On the other hand, among the small breeders are occasionally found those who either are unprincipled or so inexperienced that they are not worthy of the confidence of our readers; and to make a distinction between these we require of all advertisers the most definite and explicit information in regard to their plans. We must know of every one securing space in our columns how large a yard he has from which he expects to raise queens; what breeding stock he has; when he expects to begin deliveries; and, more than all this, we must have reliable information as to the character of the advertiser; whether he will properly take care of orders placed in his hands, and promise to return promptly on request funds which have been placed in his hands for certain orders. Unless this information is fully supplied we shall decline the use of our columns to any one unwilling or unable to furnish it.

THE A. I. ROOT CO., MEDINA, O.

HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

Special Easter Offer

Gleanings in Bee Culture, 1 year . .	\$1.00
Pictorial Review, 1 year	1.50
Both Publications at Clubbing Rate	1.60

Canadian postage 55c extra ; foreign postage \$1.10 extra

Let us take a glimpse of the Pictorial Review for 1916. One of the new features of this most rapidly growing magazine in America is its book-length novels complete in four installments—each one of which will sell for \$1.50 in book form after its publication in the Pictorial Review. The following are some of them :

THE HEART OF RACHEL

By Kathleen Norris, is a whole evening's reading in itself. Every live thinking woman is bound to be interested in this great serial.

THE CURVE OF THE CATENARY

One of Mary Roberts Rinehart's remarkable mystery stories which will keep you breathless from start to finish.

MAKING HER HIS WIFE

A really great novel, and a credit to the originality, humor, and philosophy of its author—Carra Harris.

SHORT STORIES

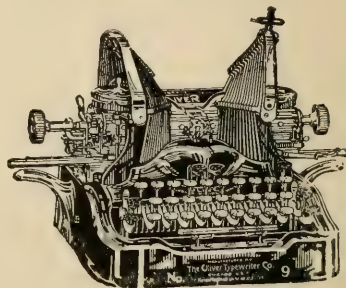
In addition to these novels you will get from 60 to 70 of the best stories now being written by living masters of fiction.

The children have not been forgotten either. Dolly Dingle cut-outs will be a delight to children of all ages. The usual household department, showing the latest wrinkles in the home decoration, child welfare, beauty hints, household devices, recipes, and fashions will also create much enthusiasm.

The A. I. Root Company
Medina, Ohio

A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

Caution!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hand. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

17 CENTS A DAY! Remember this grand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features. Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

TODAY---Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

Warning!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

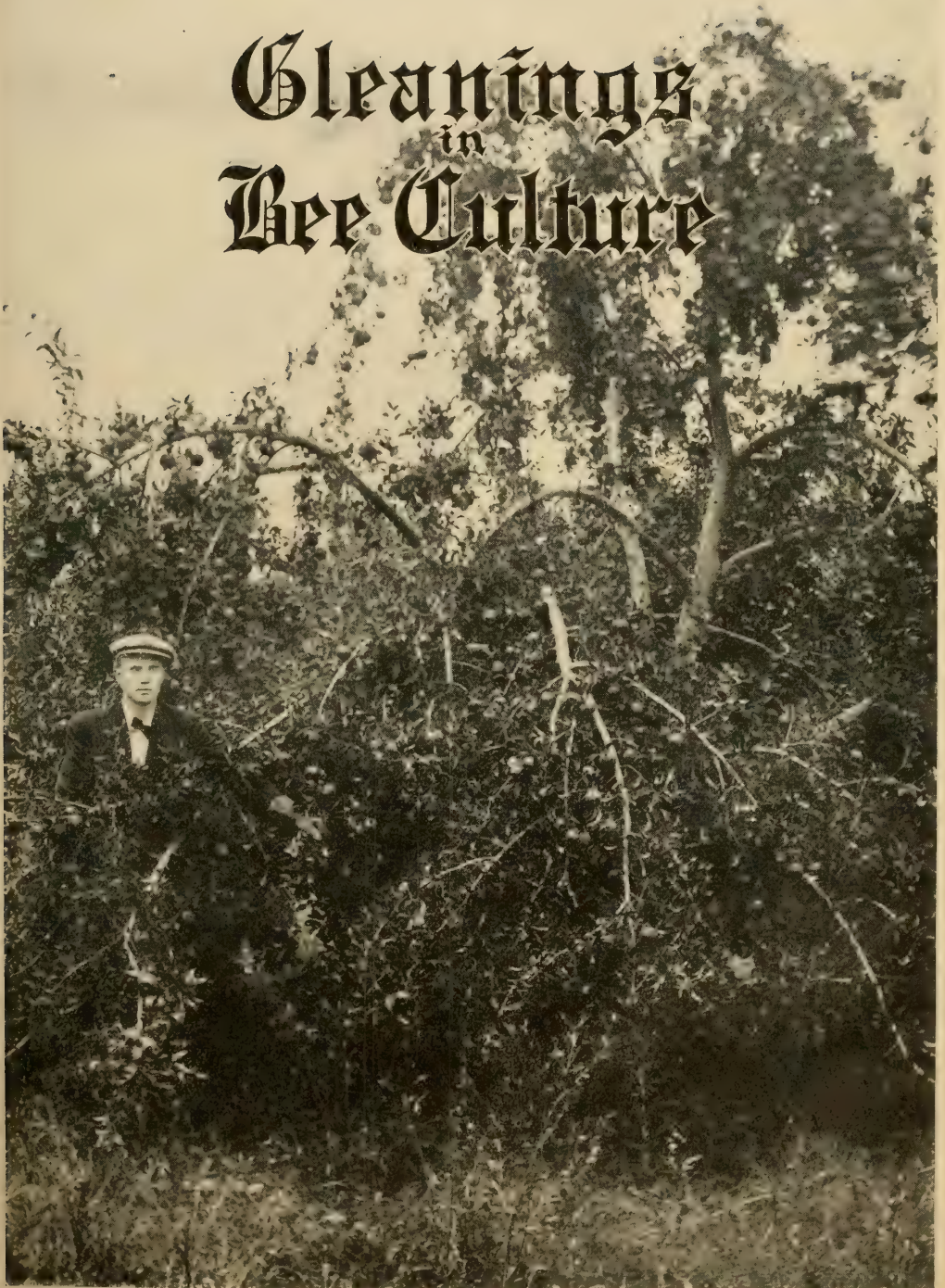
If you are using an Oliver, it naturally follows that you want the finest model.

The Oliver Typewriter Co., Cleveland, Ohio

946 Prospect Avenue

1915-1916
Agricultural
College

Gleanings in Bee Culture



Gleanings in Bee Culture Magazine Clubs for 1916

GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$2.25
YOUTH'S COMPANION 1 year, \$2.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$3.20
WORLD'S WORK 1 year, \$3.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.60
PICTORIAL REVIEW 1 year, \$1.50 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.50
THE MODERN PRISCILLA 1 year, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.10
WOMAN'S WORLD 1 year, .35 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.50
LITTLE FOLKS 1 year, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$2.00
GARDEN MAGAZINE 1 year, \$1.50 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.75
RURAL NEW YORKER 1 year, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.30
FARM JOURNAL 5 years, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.50
THE PRACTICAL FARMER 3 years, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.15
OHIO FARMER 1 year, .50 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.10
FARM AND FIRESIDE 1 year, .50 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.50
AMERICAN POULTRY JOURNAL ..1 year, \$1.00 }	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.10
POULTRY LIFE 1 year, .50 }	
(Devoted to progressive poultry culture in the Northwest)	
GLEANINGS IN BEE CULTURE....1 year, \$1.00 }	Both for \$1.15
GREEN'S FRUIT GROWER.....1 year, .50 }	

Because of additional postage required, these offers do not apply in Canada or foreign countries, nor to residents of cities in which the magazines are published if extra postage is required to mail the publication to such subscribers..

Gleanings in Bee Culture, Medina, Ohio

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A post card will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

CHICAGO.—The market continues to drag, there being a heavy supply on sales, especially of comb honey. It is difficult to quote prices under these conditions; but it is seldom that the best grades of white comb bring 14 or 15 cts. per lb., most of the sales being made around 13. Extracted white brings 7 to 8; ambers, 6 to 7. Beeswax is steady at 30 to 32.

R. A. BURNETT & Co.

Chicago, April 4.

NEW YORK.—There is no demand for comb honey to speak of; and while No. 1 and fancy white are cleaned up, there is quite a stock of off grades still on the market for which there is practically no demand, and hard to dispose of at any reasonable price. The market on extracted honey is in a little better shape, and prices now show an upward tendency, especially on fancy West Indian honey; supplies sufficient to meet all demands. Beeswax steady at from 29 to 31, according to quality.

New York, April 6. HILDRETH & SEGELKEN.

INDIANAPOLIS.—The demand for both comb and extracted honey has been light of late, due to the weather condition mostly. Choice white comb is selling at \$3.75 to \$4.00 per case; No. 2 white comb, \$3.50. Extracted of excellent quality is bringing 9½ to 11. For wax we are offering 28 cts. cash or 30 in trade.

Indianapolis, April 4.

WALTER S. POWDER.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1, per case, \$2.93; No. 2, per case, \$2.70. White extracted, per pound, 8½ to 8¾; light amber, 8 to 8¼; amber, 7 to 8. We pay 25 cts. per pound in cash and 27 cts. per pound in trade for clean yellow beeswax delivered to us here at Denver.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, April 6. Frank Rauchfuss, Mgr.

KANSAS CITY.—The supply of extracted honey is large, and the demand light. The supply of comb honey is not large, but the demand is light. We quote No. 1 white comb, 24-section cases, per case, \$3.00; No. 2 ditto, \$2.50 to \$2.75; No. 1 amber ditto, \$2.75 to \$3.00; No. 2 ditto, \$2.50 to \$2.75; white extracted, per pound, 7 to 8; amber, 6 to 7; No. 1 beeswax, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, April 5.

ST. LOUIS.—The demand for comb honey in this market has been very light of late, but we have had a fair movement in extracted honey. Stocks here are not plentiful, especially southern extracted honey in barrels; but the stock of 60-lb. cans is larger. We are getting for No. 1 white comb honey \$3.75; light amber, from \$3.25 to \$3.50, and amber from \$2.50 to \$3.00; extracted honey in 60-lb. cans from 6½ to 8½; southern amber in barrels from 5 to 6; dark, 1 ct. less. Beeswax is very firm at 29½ for pure; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, April 8.

ZANESVILLE.—At a season when the honey business is usually light, we are having a fair and normal demand. There has been no marked revision of prices. As heretofore, best grades of white comb bring around \$4.00 in single-case lots. Some lots of Western are offered at \$3.75. On quantity orders some concession is allowed, and of course jobbers are given the usual 12 per cent discount from list prices. Extracted in cans is quoted at 9 to 11 for best grades of white, there being little demand for amber. Twenty-nine cents cash, 31 in trade, are ruling prices paid producers for beeswax. Selling prices are largely arbitrary, varying with quality and quantity.

Zanesville, April 6.

E. W. PEIRCE.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

**LEWIS' BEEWARE, DADANT'S FOUNDATION,
ROOT'S EXTRACTORS, SMOKERS, ETC.**

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

You Should Earn \$25 a Colony from Your Bees This Season

This can be accomplished if you have a young prolific queen and a strong colony when the honey-flow arrives. Many beekeepers fail to secure the greatest possibilities from their bees because their colonies are not strengthened and built up early in the season, making it possible for them to take advantage of the honey-flow when it arrives. This should be a good season for clover honey, as weather conditions last year throughout the country were the best for securing a good strong stand of clover we have had for many years.

We now have a large queen-rearing outfit in Florida for the express purpose of supplying you with **EARLY QUEENS AND BEES IN PACKAGES**. We are breeding from queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. You should have this strain of bees in your yard, and insure the placing of each of your colonies on a paying basis. We have a large supply of queens at this time, but as orders are coming in rapidly, we recommend that you provide for your requirements early.

ISLAND-BRED ITALIAN QUEENS
Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens, \$5.00 and \$10.00 each

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus	\$2.00	Three-frame Nuclei	\$4.00	Eight-frame Colony ..	\$ 8.50
Two-frame Nuclei	3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

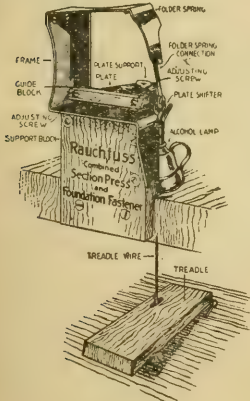
PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
1/2-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without queens)

Address all communications to
THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER**. Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for 4 1/4 x 4 1/4 and also for 4 x 5 sections.

PRICE \$3.00, COMPLETE WITH LAMP AND TREADLE, DELIVERED POSTPAID ANYWHERE IN THE UNITED STATES. Write for 68-page illustrated catalog of the best Bee-supplies made.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION
1424 Market Street
Denver, Colorado

Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairymen, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**

306 E. 5th St., Canton, O.



SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 818 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

Gleanings in Bee Culture

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H. H. ROOT

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\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Issued semi-monthly

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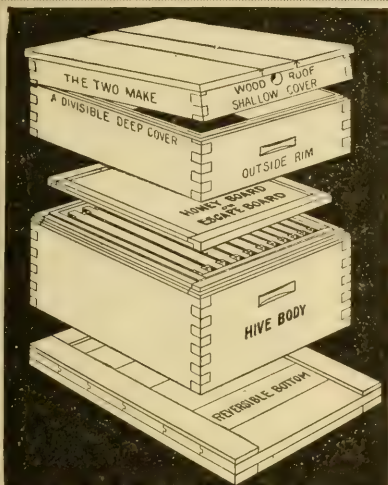
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Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

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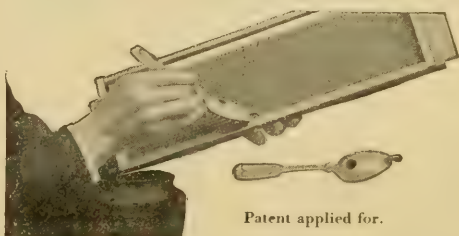
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We sell them in Michigan. Send for catalog. Beeswax wanted---
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We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

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Let us have the pleasure of mailing you our free catalog.

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We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

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Lewis Hives are Built Like Furniture

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PRICES	1 lb.	10 lbs.	30 lbs.	100 lbs.	60 lb. a bu.	5 bu. a bu.	10 bu. a bu.	Lbs. per acre
Unhulled White, re-cleaned	\$0.25	\$2.00	\$5.10	\$16.00		\$4.80	\$4.50	25 to 30
Hulled White, re-cleaned and scarified	0.30	2.75	6.75	22.50	\$13.50	13.00	12.50	6 to 10
Hulled Yellow, re-cleaned and scarified (<i>Melilotus Officinalis</i>)	0.20	1.80	5.10	17.00	10.20	9.50	9.00	8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel-post shipments.

Please Note.—All of our seed is thoroly cleaned. The scarifying process usually breaks some of the seeds, and we remove all broken seeds. This is an important saving to you. Samples on application.

Dadant & Sons, Hamilton, Illinois

YELLOW SWEET CLOVER.—Many people fail to recognize the value of the biennial yellow sweet clover as a honey-plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper. Be sure, however, to get the biennial variety as quoted above.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

APRIL 15, 1916

NO. 8

EDITORIAL

Our Cover Picture

A STRIKING testimony to the value of bees as pollinators is given by George H. West in his article, page 317. The picture shows a bountiful yield, surely, especially since the crop had been thinned down twice.

Scarcity of Maple Sugar and Syrup

FROM present advices the amount of maple sugar and syrup this year will be very small in comparison with other years. This ought to stimulate the demand for good extracted honey. If the good housewife who has a preference for maple syrup can't get it, and desires a high-grade sweet, she will take honey.

Indiana Beekeepers, Take Notice

IT is not often that GLEANINGS takes a hand in politics; but here is a case where a beekeeper is running for Congress, and we should like to call the attention of the Indiana beekeepers to that fact. S. H. Burton, of Washington, Ind., who is a frequent contributor to these columns, is a candidate for member of Congress on the Progressive ticket, in the 2d Indiana District. He is an extensive fruit-grower and beekeeper, and he stands right on the temperance question. It seems to us that he deserves the support of those interested in good government.

Manufacture of Sugar from Sugar Cane in the United States Decreasing

FROM the Department of Commerce, Bureau of the Census, we learn that in five years the manufacture of sugar from sugar cane has decreased 29.3 per cent. Reports were received from 181 factories, 168 of which were located in Louisiana, 5 in Florida, 4 in Texas, 2 in Mississippi, and 1 each in Arizona and South Carolina. In the season of 1913-14 the total valuation of the sugar produced was \$18,947,683; molasses

and syrup, \$2,631,212; by-products, \$56,477. Total valuation for the season of 1913-14, \$21,635,372.

In 1909 there were 214 factories, and the valuation of the sugar produced was \$26,095,673; molasses and syrup, \$3,211,191. Total valuation in 1909, \$30,620,738. The value of the annual production has therefore decreased nearly \$9,000,000, or 29.3 per cent, as stated above.

No figures in this report were given for 1915. No doubt the effect of the last war has been to increase the manufacture of sugar.

Considering the decrease up to 1914 from the figures of 1909 probably the manufacturers of sugar from the sugar beet and the manufacturers of other syrups are largely responsible. Will the time ever come when honey, so far from being a luxury, will become an article of food that it may influence the manufacture and sale of granulated sugar?

Co-operative Experiments in Apiculture

THE provincial apiarist of Ontario, Mr. Morley Pettit, is now sending out the blanks for the collection of data concerning beekeepers who will assist in performing the prescribed experiments. Such beekeepers in Ontario who have assisted in former years are requested to make formal application for the same experiment as before, as better results are obtained the second year. The following list of experiments, as will be noticed, are those which have to do with swarm control and spring management.

Experiment 1.—Prevention of natural swarming in extracted-honey production by holding the colony together. This is one of the most popular methods. Forty persons tried it last year with good results.

Experiment No. 2.—Prevention of natural swarming in comb-honey production by artificial shaken swarming.

Experiment No. 3.—Prevention of natural swarming by manipulation of hives instead of combs. The instructions will be some-

what changed and improved. This method is especially for advanced beekeepers.

Experiment No. 4.—Method of spring management to get strong colonies for the honey-flow. This includes spring protection and stimulative feeding. Seventy-nine persons tried it last year.

How Much Wages a Helper in a Bee-yard May Expect

IN the course of a year we receive many inquiries from men having one to five years' experience with bees asking how much wages they could expect were they to hire out to some extensive producer. It is impossible to give a definite answer to such inquiries, for the wage to be expected depends largely upon the individual in question, also somewhat upon the average wage for farm help in the locality, and also upon the employer. There are also different bases of figuring—that is, whether board is included, whether the board includes washing and clothing, etc.

A great deal depends upon the references that can be given. But, after all, perhaps the fairest way is for the employee to work a few days in order to permit the employer to judge as to his ability before the wage question is finally decided. We admit that this is not always practical. Very seldom would such a plan be practical, indeed, if the employee lived at a distance. However, as every producer of honey knows, there are veritable greenhorns who, after a couple of weeks, are worth more than some "experts" of a dozen years' experience. Yes, it depends on the man, on his employer, and on the average wage paid in the locality.

Are Certain Animals Immune to the Stings of Bees?

ONE of our queen-breeders, Mr. Arlie Pritchard, who had charge of our apiaries last summer, had some white rats for pets. During the late warm spell when the bees took a flight he took some live bees and gave them to one of the rats. He eagerly grabbed them up (as if he were in the habit of doing it), holding them between his front paws, munching them as if they were one of the most delicate morsels he ever ate. Stings? Yes, the bees planted their stings on his pink nose, but, nothing daunted, he went right on munching his meal as if nothing had happened. Mr. Pritchard later pulled out two stings from the rat's nose, but apparently they did not have the least effect.

He also relates that on another occasion he took some toads and placed them in

front of the entrance of a hive and watched them lap up with their long tongues bee after bee. After a big lunch he would open the mouth of one of these toads and find it literally filled with stings; but neither the aforesaid rats nor the toads seemed to suffer any inconvenience.

Certain birds are fond of lunching on live bees. We have repeatedly seen a kingbird catch them on the wing; but apparently his birdship is careful to crush his victim, and so it is claimed he does not swallow it. Reports, however, have shown that there have been found stings in the crops and throats of the birds, but apparently they do not suffer from them.

Mr. Pritchard once tried a mouse. This was caused to go into the entrance of a hive; but the bees stung him, and he soon came out and died a few feet from the entrance of the hive. There were only five stings, but they were enough to cause the death of the rodent.

The white rats, except for color, seem to be the same as the common gray ones that are such a nuisance on the farm. It is probable that ordinary rats are as immune as white to the effects of beesting poison. Is it not possible that the common rat does a considerable damage in an apiary at a time of night when his work would not be discovered?

A Plea for Warranted Queens

THE following letter came from one of the most prominent queen-breeders in the country—a man who, we know, produces first-class stock; but in view of the fact that some of his fellow-advertisers may feel that we are giving him too big an advantage in an advertising way over all of them we are withholding his name and address. The letter reads as follows:

In reading Mr. Webb's article on mismated queens it seems he has run into some very careless queen-breeders, surely not representative of the majority of queen-breeders. I was a beginner myself once, and bought lots of queens from different breeders, but never had over one mismated out of a dozen. I have been a queen-breeder myself for some years in a limited way, and find my mismatings run from 3 to 5 per cent.

For the last two years I have been guaranteeing every queen purely mated, or another queen when returned, and find that very few ever come back; and it gives customers confidence, and increases sales over and above what little loss I may get by returning pure for mismated queens.

You say in your editorial that guaranteeing queens would open a way for fraud on

the part of customers; but I have never found it so. Most of the small beekeepers are in the game as much for pleasure as profit; and when they feel they have been squarely dealt with and get their money's worth, they have no inclination to take advantage of the queen-breeder.

There is nothing to interfere with any queen-breeder guaranteeing pure mating; but we would recommend that all queens that prove to be mismated be returned, and that the queen in the first place, before being sent out, be marked by a peculiar cut in the wings, so that positive identification will be possible.

While we believe in humanity, and believe that most of the world is honest, we know of an instance that occurred last summer where one party was getting queens right and left of numerous queen-breeders, telling them that the queens were unsatisfactory, and asking for a replacement. As a result he secured a lot of extra queens for nothing.

Where one lives in a locality well Italianized, he can afford to guarantee pure mating at very little expense; and, naturally enough, the public will patronize the person or concern that guarantees its stock, prices being equal. In time this will shut out the irresponsible and careless breeders, and compel all to reach a certain standard or quit the business.

The largest bulk of our complaints concerning advertisers have been against a few that furnish queens—not against those who have advertised queens for many years, but rather against a few of the late comers in the field who do not realize nor perhaps understand the importance of having their mating-yard where there are few or no black drones.

Carrying Bee Legislation Too Far

RECENT discussion in these columns, editorially and otherwise, shows the great possibilities of sending bees in one, two, and three pound lots by express. There is very little likelihood that bees when sent in this way will carry disease if ordinary precaution is taken; and yet there are several states where shipments of bees in pound packages are barred. Already we are getting complaints from these states, to the effect that the beekeepers who are supposed to be protected are being handicapped in that they can get no other bees from outside their own state. The kind of legislation that is too drastic is liable to be overturned, with the result that there will be no protection.

We are informed that European foul brood has made considerable headway in

one state; and yet the beekeepers in that commonwealth propose to bar even queen bees sent by mail. They would thus make it impossible to send vigorous strains of Italians to help combat this terrible disease. Verily, the thing that would safeguard the public becomes a menace. It is time that the beekeepers of the country awake to the folly of carrying things too far.

But perhaps some will object by saying that we have no proof that disease cannot be carried in pound-package form. Some twenty years ago we repeatedly shook out bees from diseased colonies to clear them of American foul brood. We did not call it American foul brood then, because only one kind of foul brood was known. These bees were held in wire packages for twenty-four hours, then given to clean hives on new combs. We never once had a case of bee disease develop in this way. The very essence of the treatment by the Quinby, McEvoy, or Jones plan is to shake the bees from diseased combs and put them into clean quarters. When one receives a shipment of bees without combs the Quinby treatment is automatically put into force.

Objection may be raised that disease might be carried in queen-cage candy, but not more than can be carried by queen-bees in a mailing-cage. While there is danger, the modern queen-breeder today, we believe, is exercising every precaution in that he boils the honey or uses invert sugar in making his candy.

Perhaps it may be said that we are interested in the pound-package business. Admitting this, our interests are infinitesimal as compared with those of the great public at large, who ought to have the privilege of doing an interstate business in the transmission of bees and queens under certain regulations.

The great bulk of bee diseases is carried by broken and smeared-up sections thrown out in the back yard. In the same way extracted-honey packages are sometimes thrown indiscriminately where local bees can get the honey smeared on the inside. The modern glass packages, however, used by the bottling trade, are usually of a type that is useful in the household, and will not, therefore, be thrown away. They will be washed, and the rinsings go into the sewers. The packages can then be used again for the storage of jelly or canned fruit.

After all, the great danger resides in the comb-honey packages. If we are going to debar the shipment of bees in any form, we might better bar the shipment of comb honey from one state to another or in any state.

But such legislation would be a most serious handicap on the industry.

The National Beekeepers' Association would do well to make recommendations thru a resolution sent to all the state and local beekeepers' societies, urging against going too far. It is these local associations that, in some cases, are responsible for putting thru a law that is both a help and a handicap. But why have the handicap?

Our Florida Department and its Genial Editor

WE are glad to introduce Prof. E. G. Baldwin, of Deland University, Deland, Fla. While he is professor of Latin, he is an ardent student of beekeeping. He has something over one hundred colonies of bees with a modern equipment for taking honey. He has traveled quite extensively over Florida, and in GLEANINGS for 1911 he wrote a series of articles on Florida beekeeping continuing thru the year. He also furnished some matter for the last edition of the A B C and X Y Z of Bee Culture. He is not only one whom it is a pleasure to know, but his geniality shines forth in almost every line of his printed matter.



PROF. E. G. BALDWIN

For some time back there has been a demand for more matter on the subject of Florida beekeeping, and numerous have been the requests for a department. We have finally made arrangements with our friend to edit it, and now the land of sun-

shine and of "eternal youth," balmy climate, oranges, grapefruit, bananas, and last, but not least, honey, will be represented. Prof. Baldwin needs no further introduction, either to the readers of GLEANINGS nor to the readers of the *Beekeepers' Review*, of which he is one of the associate editors.

Building up Colonies for the Harvest ; To Him that Hath Shall be Given

THERE is no more important matter in beekeeping than having colonies ready for the harvest—not only strong, but bees of the right flying age to secure a crop. Colonies of only half strength, or below par, will come far short of the strongest colonies in honey production. A beginner would naturally suppose that a half or two-thirds strength stock would gather proportionally as much honey as one of full strength. But this is far from being the case. In the production of comb honey, at least, the half and medium sized colonies possibly might not go up into the supers at all, while the full colonies might store 50, 100, or even 200 pounds each. In the production of extracted honey the relative difference between the different sizes of colonies is not so marked, but great enough to make it very important that all colonies should be regular boomers in size, full to overflowing with bees.

The average novice would readily suppose that the proper thing would be to equalize the strength of the various colonies by the interchange of brood a month or six weeks before the main harvest; but if the weak colonies are strengthened at the expense of the strong, the danger is that all the colonies will be below par, and that the yield of honey will be light.

Our best beekeepers of the country are unanimous in the opinion that the process should be reversed. If the colony is strong, it is only necessary to see that it has plenty of stores. Of the two, four, and six frame colonies, the strongest should be selected, and built up by taking brood and bees from the weaker. By this process the nuclei will be absorbed, and all colonies be brought to honey-gathering strength.

In uniting it is best not to take too much brood at a time, as the reinforced colony may have more than it can take care of properly. If that is the case, some of the brood would be chilled or neglected if unsealed. So far as possible it is advisable to use hatching brood, or near hatching brood, in the early part of the season. Later on, when the weather is settled and warm, the

younger brood can be used. Indeed, we advise at that time taking brood, bees, and all, of the weak nuclei, and giving them to the stronger of the sub-normal colonies. In honey production, either comb or extracted, the weakling colony in the spring is usually good for nothing except to use for making increase. But a better rule by far is to unite in the manner here explained, on the principle that "to him that hath shall be given, and he shall have more abundance; but from him that hath not, shall be taken away even that which he seemeth to have."

But the reinforcing with brood, as already explained, will not accomplish much unless the bees have plenty of stores in reserve, and natural pollen in the combs early in the spring. Of course, after the bees can get pollen from the fields there is no danger of a shortage; but before this time there will be bad weather early in the spring when the bees will not breed readily unless provided with combs containing pollen. Without it they will not do much. It should be borne in mind that in the early spring pollen is nearly as important as stores of sugar syrup or honey. Every good beekeeper will see that combs of it are gathered up in the fall and kept in reserve, and then slipped into the hives early in the spring on the first favorable day.* There is no better capital in the beeyard than combs of natural pollen. Artificial substitutes can be given; and while these answer the purpose to a limited extent they by no means take the place of the natural article, for the simple reason that the nitrogenous food element that the bees so urgently need is not supplied in the proper form.

Transferring

At this time of the year we receive many letters inquiring for easy methods of transferring bees from old box hives to hives having movable combs. A great many inquire whether they cannot remove the box hive, put a movable-comb hive in its place, and then put the box hive on top, the idea being to have the bees work down into the lower hive. This plan is usually uncertain. If the queen is caught and put below, and a queen-excluder put between the two, the results are far better. A still better plan, however, is the one in which the box hive is below and the new hive on top. F. Eric Millen, of the Entomological Department of the Michigan Agricultural College, in a special bulletin, No. 76, of the Experiment Station, discusses a number of plans for

transferring, including the Guernsey plan, which has been given in substance in GLEANINGS before, but which will bear repeating here.

At a time when the box hive is crowded with bees, usually in May or early June, the transfer is commenced. The beekeeper provides a hive-body containing one frame of unsealed brood placed midway between a sufficient number of frames of drawn comb or full sheets of foundation to fill the hive-body. The box hive is then opened, and the new hive-body, with brood and combs, or foundation, placed on top. In a few days, usually, the queen will be found laying in the upper (or new) hive-body; but if foundation only is used it may be a week or two before the queen comes up. As soon as the beekeeper is sure the queen is in the upper hive-body a queen-excluder is placed between the box hive and the new hive, and left there for twenty-one days. When examining for the queen it is a good plan to slip the excluder between the two hive-bodies before disturbing the bees very much, as the queen is liable to run below. If, on examination, it is found that the queen has not commenced working in the new hive, the excluder must, of course, be removed and replaced after the queen ascends. Supers may be added to the new hive as required, and work proceeds normally. The success of this plan depends on getting the queen to ascend and commence working in the new hive, and, after that is accomplished, in preventing her return to the box hive. After the queen has been established in the upper new hive, and when the queen-excluder is in position, close up all outside entrances to the old box hive and provide entrance to the new hive by inserting wedges between the two hive-bodies. A sloping alighting-board, extending from the new entrance to the ground, will aid the bees in making a speedy entrance. Twenty-one days after the queen-excluder is placed between the hives, with the queen above, all the worker bees will have emerged from their cells in the box hive.

Prepare an escape-board by tacking a strip of wood just over the edge of the circular hole in the bee-escape. This strip is to aid the bees in climbing up to the Porter bee-escape. Place the board with bee-escape upside down between the hives in place of the queen-excluder. Two days after the escape has been placed between the hive-bodies, all the bees will have gone above, and the old box can be broken up and the combs rendered into wax.

We recommend the Heddon short method of transferring as given in the A B C and X Y Z of Bee Culture. We have so many calls for this that we have printed circulars that we send out on request, giving this plan.

Mr. Millen, in the bulletin above referred

* It is not advisable to have such combs in the hive during mid-winter.

to, gives what he calls the water method of transferring. This plan for transferring from diseased combs was given in GLEANINGS, page 237, March 15, last year. Aside from the inconvenience in providing a tank of water large enough, the plan has much to recommend it. Briefly, the plan consists in providing a wash-tub, or other tank large enough and deep enough to allow the box hive to be entirely submerged in water. Remove the top and bottom of the hive and place the new hive on top. While the two hive-bodies are held in contact, very slowly lower the box hive into the water until the bees have been forced off the old combs up into the combs of the new hive up on top.

Mr. Millen's bulletin is interesting, and is well worth careful reading.

Report of the National Convention in Chicago; Continued from p. 258

ON the afternoon of the last day, after the address by S. G. Snooks, Freight Claim Adjuster of the Erie Railway, the delegates brought in their report, setting forth their recommendation in regard to the matter of reorganizing and naming new officers. This has already been given on page 217, March 15.

Following this, Mr. E. D. Townsend delivered an address on the subject of "Shipping Comb Honey by Parcel Post." He showed several packages that he had been using. For the parcel-post trade he did not deem it practicable to ship it further than the second zone. The postage on a gallon of honey for that zone is 19 cts.; on the third zone, 34 cts. But no one, he thought, would pay this latter price.

Names of prospective customers he secured by advertising. While many would suppose that local papers would be the medium, he had found the women's journals of national circulation much more satisfactory. All the names that he secured he kept in a card index, and then followed these up with circular letters which he wrote from time to time. He was surprised, after he had gone into this kind of advertising, to see how many orders he received for honey to go by freight and express. The general results of advertising showed that about 25 per cent was for honey by parcel post, and the rest for freight or express.

A sixty-pound package is a little large for family use. He had been using the half size, or 28-lb. package for freight or express. He would offer as large a package as a family would take. If he offered only a gallon size, a gallon was all they would

take. Where possible he would sell a 28-lb. size; but of course this would be too large for parcel post.

Postal regulations for liquids (and this, of course, includes honey), he said, require that the container shall be hermetically sealed, and the box surrounding the container must have a double thickness. He did not find it practical to use friction-top pails, as they were not secure enough. He used nothing less than the screw top. The suggestion was made, however, that the friction top might be used providing four drops of solder were used to hold the top in place.

Prof. Francis Jager, in charge of the Apicultural School at the University of Minnesota, then followed with an address on Beekeeping Improvements thru Agricultural School Work. There was a time, he said, when we had to learn nearly everything by ourselves. But the time has now come when we have special schools for every line of work. It takes a great deal of time and work to secure the necessary knowledge and experience by oneself. But now one can get his instruction at a school where oral instruction and demonstrations can be given. Beekeeping at the present is taught in a dozen different colleges in the country. Three years ago there were only three such schools of apiculture. They had at their school 160 pupils, the most of whom were from the homes of beekeepers. The object of the school, he said, was to make better beekeepers, not more of them. We not only need better beekeepers but better beeyards. Too many yards are poor and neglected.

They give every year at their school a short course in apiculture, where instructions as well as demonstrations of how to do the work are given. Many questions are answered; as, for example, how to winter bees in a modern packing-case; how many bees to put into winter quarters in order that they may properly maintain their winter temperature; information is furnished in regard to handling bee diseases; where this and that kind of honey can be secured. In Minnesota they are making a large map showing where the beekeepers are located, where foul brood is, where the best clover areas are situated, etc.

The demand for beekeeping instructions has been increasing. At first Prof. Jager tried to do all the work himself, but since has been obliged to call in an assistant.

As the writer was not present at all the sessions he is unable to report all the addresses or papers that were given. Some of them will, therefore, be conspicuous by their absence.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



LAURENCE A. P. STONE says, p. 275, "If bees get thru the spring months and to the clover flow without contracting European foul brood, it is almost a sure thing that there will not be any until a scarcity of honey again." I know that is claimed, but here it is not likely to put in an appearance until clover begins.

NEW ZEALAND law, which allowed 26 per cent of water in honey, has been changed to 20 per cent, largely thru the influence of I. Hopkins. Analysis of 51 samples of honey gathered from all parts of the country showed the average water content to be 16.46 per cent—*British Bee Journal*, 79. Is the 25 per cent water allowed in this country a bit liberal?

A. I. ROOT, you say you don't entirely agree with me about cross bees, p. 293. I quite agree with you that bees rarely handled may be crosser than those frequently handled. More than that, if continued generations enough it may become a permanent trait. That doesn't bar out heredity. I think you will agree with me that, if you breed from cross stock, cross bees are likely to result. If the temper is not transmitted by the queen, how is it transmitted?

GEORGE H. REA, p. 273, you say shaking is more economical than dequeening for European foul brood. May be, if a single shake will do. But you say, "In order to keep your bees clean it is necessary to have the surrounding territory clean." "Ay, there's the rub." How am I to control the surrounding territory? You speak of a colony, by the dequeening plan, being left without a laying queen for two or three weeks, and then of little value for the rest of that season. Eight or ten days, not two or three weeks; and before I ever had a case of foul brood I had hundreds of cases of big crops from colonies made queenless for ten days, and my bees don't loaf in that ten days. You say, "By the shaking treatment the bees lose practically no time." Don't they lose practically all they've done in the previous three weeks? They do here. If shaking is more economical for you, by all means shake; but it's more expensive for me.

RATHER startling it is to have Doolittle come out flat-footed, p. 236, and say that European foul brood is not conveyed in the honey. I do know that I have fed honey from diseased colonies without conveying the disease, so I know it is not always thus

conveyed. I am pretty well satisfied that it is *continued* in a colony by the nurses eating diseased larvæ that have not yet become putrid; but how does it get into the hive in the first place, if not by the honey? Likely robbers, in nosing about among the diseased combs with their millions of spores, get spores on their bodies, and a chance one of these in some way gets into the babies' food. If you insist, it can hardly be denied that there is one chance in a thousand that a stray spore may fall into the honey.

THE 4x5 plain section is gaining in popularity, we are told, p. 248, but the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ is still in the lead—very greatly in the lead, if I am not mistaken, and at the present rate of gaining popularity it will take many a year for the 4x5 to overtake it. It should be remembered that the $4\frac{1}{4} \times 1\frac{7}{8}$ has made and held its way without any boom—never a boom so far as I know—but in spite of heavy booming of other kinds. We were told that we could market some other kind for a cent or two more a section, and probably a good many tried it only to be disappointed and return to their first love. You, Mr. Editor, prefer the 4x5. That helps the 4x5 quite a lot. A beginner, seeing your preference, will at once decide the 4x5 is the thing for him, will adopt it, and use it successfully, and then think no other kind so good, having tried no other kind. But others of us don't like the 4x5, and will none of it. I wonder if we are not considerably more in the majority than you think. Some prefer sizes other than either 4x5 or $4\frac{1}{4} \times 1\frac{7}{8}$; but the majority, including a good many who have tried other sizes, prefer the $4\frac{1}{4} \times 1\frac{7}{8}$. Now if you odd-sizers would sink your personal preferences, and unite to give the $4\frac{1}{4} \times 1\frac{7}{8}$ a fourth of the boosting the other kinds have had, don't you believe that in a short time we could be rid of the nuisance of having more than one kind? [The $4\frac{1}{4} \times 1\frac{7}{8}$ is a long way in the lead, and probably will always hold it. The facts are, the 4x5 is making slight gains if the record of sales means anything. Whether it will continue to do so, of course remains to be seen. It would be almost impossible to make the public confine itself down to one section, one hive, one frame, however desirable uniformity might be. If the shoemaker, for example, could sell only one style of shoes, and all black, and no tan, it might simplify his problems in buying his goods; but the fact is, the human race is fond of variety, and variety is the spice of life.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The sage growth is wonderfully fine, altho the sage weevil gives promise of much injury to the buttons. I am of the opinion, however, that we shall get a good flow from it.

* * *

The orange will be practically gone this season before the sage gets to yielding. This is the first time I have seen this condition in my twelve years in California.

* * *

Mr. T. O. Andrews, inspector of Riverside County, called to see me last week. He informs me that European foul brood is on the decline, while the American type of the disease is increasing rapidly in some localities.

* * *

All correspondents should enclose stamps for reply to any letters asking for information other than mutual business. It costs only two cents to mail a letter; but when 100 is the figure it runs into dollars, to say nothing of the time and stationery used.

* * *

Mr. E. E. Lawrence expects to return to Doniphan, Mo., within a few days. I am sorry business interests have called him away, for I found him to be a man of high ideals, and a noble gentleman. He will probably take up the queen-rearing business again in time.

* * *

Black brood (European foul brood) in this section of the San Bernardino Valley is more prevalent than it has ever been. At least one apiary of which I know is practically out of commission for this season, while there are many cases in other apiaries. Young Italian queens are, without doubt, the strongest battle-line that can be made for the fight. I am sorry this feature has been greatly neglected by most of the beekeepers around Redlands.

* * *

I wish to notify my correspondents that I have many letters remaining unanswered, and can make no promises as to the dates I can get at them. As with all beekeepers, this is a busy time of the year with me. I walk a distance of twelve miles daily, and at night I can be found in my shop busy getting supplies ready to go out to the apiaries. All together, my time is well filled, and I give no promise of immediate answers.

In the March issue I gave my methods of swarm control, which as a rule have worked well for me. This season, however, I was not able to remove my excluders as usual, due to the fact that an exceptionally heavy flow from the orange began before the brood-chambers were filled with brood. At this date (March 29) I am taking full combs of nectar from the brood-chambers and supplying foundation as a means of getting the brood-chambers filled with brood. The queens will lay in the foundation combs as fast as it is drawn out sufficient, while empty combs would be filled with honey within a few days. Out of the orange district, the plan I gave would doubtless work well this season.

* * *

Spring inspection of my Tremont apiary revealed four cases of foul brood—two of American and two of European. One noteworthy feature of the American is that it adjoins the stand where one colony was destroyed last spring, but this time there are two standing in the same row, on stands adjoining where the one was destroyed. One is an immense heavy colony, but has a very bad case. It will be shaken a little later. The others have already gone by the sulphur route.

The two cases of the European are the first of the kind I have ever had, and they were quite a surprise to me. Both colonies are very dark in color, one not being requeened last summer. A very peculiar circumstance in connection with the other colony is that there are two colonies being carried over winter in a two-story hive with screen wire as the only division between them, the upper one having a separate entrance. Both were given young queens last summer that were reared from a golden mother. The bees of the lower portion thought they could raise a queen that would suit them better than the one I gave them, so they did. It is this portion that has the disease, while those above the screen are as healthy and strong as one could want a colony at this time of year. Fortunately I have anticipated just such trouble, and have very few colonies that are of low-grade stock. It seems to me that if anything is proven by the double colony it is that good stock is a factor in fighting European foul brood, regardless of the contention of some of our expert authorities that it is not. It appears to me that only one good stock has the vigor necessary.

J. E. Crane

SIFTINGS

Middlebury, Vt.



That Backlot Buzzer, p. 167, is still in trouble — just like some beekeepers I have known.

* * *

Dr. Miller drops a Straw on windbreaks, p. 139, Feb. 15. I believe he is right—quite right. Let us remember.

* * *

Thank you, Mr. Editor, for the suggestion on page 134, Feb. 15, about leaving out entirely that “flimsy following-board.” I am sure many beekeepers as well as inspectors will rise up to bless you.

* * *

Page 147, Feb. 15, Arthur C. Miller tells us that golden Italians are not Italians at all. What a misnomer! I wonder some one had not found that out before. I believe our friend must sit up nights thinking.

* * *

The earth is covered at this time, March 18, with about two feet of snow, with a good deal of zero weather in this vicinity. It looks now as tho it might be a late cold spring, and perhaps a good deal of spring dwindling. At present, however, bees seem to be in good condition.

* * *

Mr. P. C. Chadwick says, page 149, “It was pretty well agreed by inspectors at the state meet that the symptoms of all kinds of brood diseases converge until it is a very difficult matter, in many instances, to tell just what the disease may be.” They are quite correct. Then is the time to send a sample to Washington, Department of Agriculture, to decide.

* * *

The question of the number of hives of bees to the acre in an apple-orchard or orange-grove is discussed by the editor on page 92, Feb. 1, and is one of great importance. It has been proved beyond a doubt in northern Vermont that it pays to place eight or ten colonies of bees to the acre in a cold cloudy time of bloom—a colony for each four or five trees.

* * *

Charles McCulloch, in the market reports for March 1, says, “Lower prices have stimulated the demand for honey, and it looks now as tho the market will be well cleaned up, and no stock to carry over,” while Mr. Byer, Mr. Phillips, and P. C. Chadwick are discussing the question of overproduction, page 184, March 1. Now, it seems to me a case of underconsumption rather than over-

production. Lower prices will usually stimulate the demand, but demand will be small when prices are too high.

* * *

Our friend Doolittle, page 98, Feb. 1, gives us advice as to liquefying granulated honey, which is decidedly sound. The whole subject is one of ever increasing interest. Why should some honey granulate sooner than others? and why should some kinds stand a higher temperature without injury than others? Why has comb honey granulated more readily during the last two years than formerly?

* * *

This time Mr. Frank McNay, of Pasadena, would prophesy, page 175, March 1, “If the ground freezes wet, there will be honey! if it freezes dry, there will be no honey.” I also will prophesy. If the ground freezes wet, if the ground is covered with snow during the winter, if we have no fields of ice on meadow or pasture, if the bees winter well, if April is mild so bees can breed strong early, if apple-bloom and dandelion yield freely, if May and June are wet, if we have no long cold rainstorms during clover bloom, if clover bloom yields nectar freely, and bees do not swarm too much, we shall certainly have a good season; but I believe one of A. I. Root’s speckled buttercup biddies is wise enough not to prophesy until an egg has happened.

* * *

We here in Vermont are in the midst of a lively campaign for state-wide prohibition. I have been astonished at the amount of money expended by the liquor interests for local option as a temperance measure. “When the Devil was sick the Devil a saint would be,” and they would have us believe that untold evil will follow if the forty odd saloons in Vermont should be forced out of business. No alcohol for sickness, no wine for communion purposes! how dreadful! They have not yet learned that unfermented grape juice is used by most churches at the present time. Maine and Kansas are represented as fast going to the dogs in consequence of prohibition laws.

Later.—I am sorry to report that our state has decided by some 13,000 majority to continue local option in preference to state-wide prohibition as the best method of controlling the liquor traffic. We must still be kept in the A B C class until we can better learn our lesson, that the children of this world are wiser in their generation than the children of light.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



A long dry spell has been pretty general thruout the great Southwest. There was very little fall and winter rain, so beneficial for the early honey-yielding vegetation. The winter has been an unusually warm and open one, with little very cold weather. Bees have been reported in good condition. Altho drouthy conditions prevail, and there is but little indication now for any rains, prospects are bright enough. If there are no late freezes some early honey may be obtained. The mesquite is especially promising with an abundance of buds—so far advanced, indeed, that it will come into bloom before the end of March.

But "there's many a slip 'twixt cup and lip," and cold weather might give quite disastrous results. It would do considerable harm to the bees by directly affecting the colonies in their advanced stage of development as well as cutting off the sources of nectar and pollen. With continued warm weather, indications are for much super work thruout the mesquite, huajilla, and catelaw sections.

A visit from Mr. and Mrs. C. P. Dadant, on March 16, was indeed an enjoyable one. The time was only too short. There were numerous apicultural topics for discussion, but many more did not even get out of the "question-box." These good people were accompanied on their visit by Mr. and Mrs. E. G. LeSturgeon, of San Antonio. It is useless for me to begin to enumerate the subjects of most importance that came up at this "beekeepers' meeting" in which the ladies took as much interest as the men folks. It so happens that each one of the better halves is a real partner to her husband, which accounts for their interest in the discussions. Our welcome to such visitors is extended indefinitely. Such discussion usually brings out new ideas and revives many old ones that have been permitted to go into a dormant stage. In other words, "it helps to make better beekeepers out of any of us." That is why I have continually harped on the subject of beekeepers getting together more by visits, beekeepers' meetings, field days, and beekeepers' picnics.

PREPARING OUR COMB-HONEY SUPERS.

It will require about 3000 shallow-frame supers this year in which to harvest our

comb-honey crop besides 1500 or more shallow extracting-supers for extracted honey. While the latter are left on the hives thruout the winter, and the greater part of the year, the comb-honey supers remain on the hives only long enough to become filled and the honey thoroly ripened. After the honey has been cut out of the frames, these scraped clean, and properly replaced in the supers, they are stacked up in huge piles and covered from the weather. In the early spring begins the work of filling them with foundation, work now in progress for the earlier honey-flows.

THIN SUPER FOUNDATION IS USED.

Thin super foundation in full sheets is put in the frames with melted beeswax. Altho this has been mentioned by me a great number of times, questions continue to come from every part of the country on this subject. A frame-rack holding three frames and containing spacing-boards to guide the sheets of foundation to the center of the top-bars is used. Common table-spoons, with usually the lips of the front end of the spoons hammered together slightly to direct better the flowing wax, have been found to be the cheapest and best for the work. The wax is heated in a large stew-pot containing some water, either on a charcoal furnace or gasoline-stove.

IT IS MERE CHILD'S PLAY.

Children do almost all of this work for us now as against grownups of former days. They are better adapted for this kind of work on account of their nimbleness and quickness. The work is light and becomes more difficult for clumsy hands to do. It is especially advisable and essential that this work be done during the earlier and cooler part of the days in the summer on account of the tendency of the thin foundation to becomes soft and rather difficult to handle. Thus the children can put in good time for several hours in the mornings and earn quite a little amount of pin money. It affords us an opportunity to employ so many more nimbler hands at a time of day when the work can best be done. They enjoy it too, even to our own little four-year-old tot who, by the way, helps every morning, of her own accord entirely, of course, to remove the paper from between the foundation sheets, and lay it within reach of others who put it into the frames.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



BEES AND APPLE-BLOSSOMS.

"I live in a locality where there are many orchards of apple-trees. What relation do these trees bear to our friends the bees, in having them in shape so that they can, by the 'great army of workers' produced thru the stimulation of apple-bloom, gather for us the tons of honey from the white clover and basswood?"

Thus writes a correspondent. In reply I would say that nothing in the line of early honey so stimulates early brood-rearing as does that which comes from the pink and white blossoms of the apple-trees. In fact, it has always been a proverb in this section of the country, "As goes apple-bloom, so goes the season," as to honey. More than half a century ago the hand of that most noted beekeeper, Moses Quinby, of St. Johnsville, New York, penned these words: "In good weather, a gain of 20 pounds is sometimes added to the hive during the period of apple-blossoms. But we are seldom fortunate enough to have continuous good weather, as it is often rainy, cloudy, cool, or windy, all of which are very detrimental. A frost will sometimes destroy all, and the gain of our bees is reversed; that is, their stores are lighter at the end than at the beginning of this season of flowers. Yet this season often decides the prosperity of the bees for the summer. If there is good weather now, we expect our first swarms about June 1. If not, no subsequent yield of honey will make up the deficiency."

Never were truer words uttered, as applied to central New York; and what applies to this locality will apply generally to to northern states. Hence we see that the apple-tree bears no mean relation to the beekeeper. In 1877 we had the best yield of honey from apple-bloom that I ever knew; and the results from the apiary that year were the highest ever obtained by the writer, which was an average of 166 $\frac{2}{3}$ lbs. of honey, mostly comb, from each old colony in the spring. I consider the great value from apple-bloom to lie in its stimulating quality, toward plentiful brood-rearing, and in producing stores to tide over the period of scarcity which immediately follows this bloom for a time approximating two weeks. I believe that if we could have the same number of bees in the hives in apple-bloom that we do in basswood time, with equally good weather, the yield from

this source would be nearly or quite as good while the bloom lasted; but since the bloom comes so soon after cold weather, we do not have the bees; and, still worse, the weather is usually such that the bees do not have an opportunity oftener than one year out of three or four to work on the bloom more than enough to encourage brood-rearing; hence I doubt the advisability of trying to work the colonies up to an unusual strength with the hopes of securing a surplus from apple bloom.

So far I have touched only on the practical or dollar-and-cent side of this matter. However, there is still another side which we as beekeepers look after so seldom that we grow poor, and to a certain extent ugly, in our everlasting hustle after that which pours mammon into the home treasury; and we go about continually with a look on our faces which says to every passerby, "Time is money." He who sees in the bees, the apple-blossoms, and the ripened fruit, only that which shall put money into his pocket, lives in a poor half-furnished house. He who obtains from them only what he can sell, gathers but a meager crop. If I can find something besides dollars and cents with my bees or on apple-trees, shall I not take it? Apple-trees, during each year, are like some people we know. In their young and blossoming days they are sweet and pink-hued, and then they grow acid, pale, and hard; but in the ripened experience of later life they may become sweet again, and more enchanting by their ministering to the calls of humanity. So if any of us have become acid, pale, and hard, in our eager grasping after the "almighty dollar" which may come from the bees and apple-trees, let us once more return to the joy and sweetness we had in the springtime of life which may again come into our lives as the deep richness of color comes to the ripened fruit of the apple-trees of autumn. If we have allowed our grasping disposition to get the better of our inner being, something as apples led to the loss of Paradise, is it not about time we begin to reconstruct a bit of Eden by once more listening to that better nature which will, if we will let it, lead us once more under the blossom-laden boughs, made pleasant with their perfume and the joyful hum of the bees? Nature might have contented herself by allowing the apple-trees to bear seeds only; but she accompanied such prosaic action with fragrant flowers and delicious fruit.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.

FOREWORD.

When Editor Root admitted that there might be "room for one more" in the ever-widening columns of GLEANINGS' departmental staff, a new hope was quick to leap in my heart—the hope that fair Florida might be the fortunate one to secure representation among her sister states.

I need not try to tell you, ye editors many and capable, how glad I am to see that hope being fulfilled.

I have felt for several years past that this big southeastern peninsula—the one big peninsula of our Union—deserved more magazine space, possibly, than had heretofore been accorded her. I felt that Editor Root had made a notable advance toward nation-wide apiculture when he reached out hands across the northern border to our brothers and sisters in Canada; when he widened the circle from central to middle West, and then to the great West, until he could see the sun set in the Golden Gate. But my longing eyes missed something. When first I heard the sweet humming of the Dixie Bee I felt like lifting a glad cry. From Medina to Nashville is a long stride; but I felt that this, tho profoundly a step in the right direction, was still only a beginning; for how immense is the territory south of Tennessee and east of the 82d parallel, the line that runs thru eastern Ohio, clips off the eastern tip of Tennessee, and then cuts straight down thru the heart of Florida! Now swing the compass that reaches from Medina to Nashville, "away down south" still further into Dixie, and you barely reach our Jacksonville.

The recent and systematic study of bee-keeping conditions in the great Southeast, begun under the direction of Dr. Phillips, only increased my conviction that now was "the psychological moment" to extend still further into the Southland the radii of America's most representative bee-journal—to make it, in this detail at least, more completely representative.

It is in this spirit of glad service, therefore, that I have undertaken the responsibility of special contributor from this particular region of our great Union. Read the telling chapter, "Regional Differences in the United States" in Dr. Phillips' new work, "Beekeeping," and I am sure you all will agree with me that no one contributor can speak authoritatively for all regions.

In the orange-honey belt, which extends from about the 30th parallel of latitude to the Southern Keys, the bloom on all citrus

trees this year seems about the poorest since the "freeze" of '99. A letter from my friend Reynolds, near Fort Myers, on the west coast, says "Orange-bloom a total failure." A like card from Mr. Harry Hewitt, of Apopka, reads, "Only a light bloom." On the east coast it is the same story; and here at Deland on the St. Johns the bloom is the "sorriest" I have known in 16 years. Bees have built up splendidly on it, however, and the hives, light at first, are now heavy with brood, bees, and honey—but little or no surplus. The bees are still working fairly well early and late, but lie off in the heat of the day, showing that the flow is gradually coming to a close. My hive on scales has just about held its own since the first of March, in weight; but it is much stronger in bees than then. It was not a fair representation of the average colony, however. This year only the very cream, the very pick of the prime colonies, stored any surplus from orange.

We cannot complain, however, for of the previous three years one was fair and the other two extra fine for orange honey. It is safe to add that every blossom was visited by many bees this season—no danger of scanty cross-fertilization, for the blossoms were so few and scattering that there would often be two bees trying to get into the same blossom at the same time! Reports so far received from the pennyroyal-honey-section states show that there is a fair crop of that choice article, tho not so good as last year. We have not yet a full report from the tupelo section. The next main source will be the scrub palmetto, then the cabbage palmetto, and mangrove, pennyroyal being the first in point of time.

Best Yields when the Bees are Close to the Source.

P. C. Chadwick thinks the bees are to blame if they do not go over $1\frac{1}{2}$ miles for nectar, page 149, Feb. 15. On page 145 J. E. Crane speaks of scattering bees thru the orchard for better results. If bees go long distances, why is it that they show so much better results close to the bloom? Large orange-growers here in Florida scatter the bees, and they get better fruit close to the bees.

I can show Mr. Chadwick locations here, $1\frac{1}{4}$ miles from mangrove or orange, where bees will starve, altho, close by the bloom, they can get a large yield. I have tried it, and not at one location either.

Sanford, Fla., March 25. C. H. Clute.

GENERAL CORRESPONDENCE

HOW TO DO AND HOW NOT TO DO; CLIPPING QUEENS

BY R. F. HOLTERMANN

When a beekeeper has only a few queens to clip, it is not a matter of very great importance when the clipping is done. For instance, if hundreds of queens require to be clipped it may not be advisable to wait until fruit-bloom to do it, because, with probably unfavorable days there may not be sufficient time to clip them all, and in that case I would begin to clip at any time when the bees are gathering pollen and nectar freely. No reason has ever been given, so far as I know, why it is more injurious or risky to clip a queen during the time of, say, maple-bloom in comparison to apple-bloom; and after having clipped thousands of queens any time warm enough for the bees to gather pollen and honey, during a time ranging from early willow to clover and beyond, I have not been able to discover any difference in results. The longer a beginner waits after spring opens to hunt the queen in a normal colony, the stronger the colony will be, and the more difficult it is to detect a queen.

Before a beginner undertakes to clip a queen, or even find her, I take it for granted that he will have studied in literature the appearance of a queen on the comb, and have in his mind's eye just about what a queen will look like. If the operator has never seen a living queen, it is quite an undertaking for him to find her, and I should be disposed to advise setting an empty hive in front of the old hive, with its entrance toward the old hive. Upon this, place a super, with a queen-excluder tacked to the bottom of it. Upon shaking the bees into this super from the combs in the hive in which the queen is to be found, and finally dumping the bees which remain in the old hive into the super, the bees will soon work their way thru the queen-excluder and thru the entrance of the new hive back to their brood and hive. In this they can be gently driven with smoke. The worker bees can go thru the queen-excluder, but the drones (if any) and the queen cannot. In this way a queen should be readily found. I look into this super after shaking each comb, or even glance over the combs before shaking it, and frequently find her before having half shaken the combs; but it is not well to spend much time over this.

Difficult as it may be for a beginner who is not a keen observer to find a queen the

first time, it is still more difficult to catch and clip her. There are generally other bees about her that might sting. Let them sting. Under the finger-nail is a splendid place to be inoculated. But we are also genuinely afraid we might injure the queen. This latter is, I believe, true of every beginner.

I shall take it for granted that the operator knows the difference between the head, thorax, and abdomen of a queen. Some queens are much more disposed to take wing than others. Young queens are also much more likely to fly than older queens. Where a queen appears to be light-footed, and tries to run about the comb and over other bees, even moving her wings, be careful. She has escape in mind; and if one is not careful she may take wing any moment; and if she does I would not give much for the chance of recovering her. If you want to make reasonably sure that she will fly, chase her with your thumb and finger, or blow a little smoke on her. If the queen does take wing, keep yourself and the comb in the position in which you were when she flew, but the chances are she was too excited, when she took wing, to locate herself. After holding a comb ten minutes, looking for the return of the queen, I would not wait any longer.

I have noticed students giving sharp puffs of smoke with the object of separating worker bees and queen. This is bad practice, as it tends to make a queen take wing. The least likely place for a queen to take wing is when she is quiet and her feet are on the comb. That is a place and attitude where she can be picked up by the beekeeper with the least danger.

A queen should never be picked up by the abdomen, as that is the most easily injured part of the body. Many of us have seen dents in the abdomen of a queen, just as we have seen a dent in a tin pail. This was the result of outside pressure, and it never came out. Such a queen is generally superseded. The queen must not, then, be grasped by the abdomen; but a queen can safely be grasped by the thorax.

Some advise practicing clipping by taking drones. If a beginner can first see some one else clipping queens it is quite a help.

Holding the queen between the thumb and finger may be a long way from having her in such a position that one can clip her

wing or wings, without taking some other portion of her body, particularly a leg. Queens are adepts at getting their feet against the finger and trying to pry themselves loose; and if they cannot pry against something under them, which is away from their wings, they will try to do it against something above them, where the wings are to be cut. To be safe when I clip, I like to let the queen rest on my knee, holding her by the thorax from above. When that is done she pries against the knee, and there is no danger of cutting a leg off when clipping. The same can be effected by holding her with one finger under and another above her; but this method is less certain. I like to advise the cautious way. Some beginners chase a queen across a comb with a pair of scissors, making a lunge at her wings—a method of which I never made a success. I clip the wings on both sides; others clip one each year, using the markings as a record.

If a beginner wants to find a queen without shaking and combing the bees thru a queen-excluder the following rules should be observed:

1. Do not jar the hive in which you are about to hunt the queen.

2. Smoke the bees very gently, giving no sharp puffs.

3. Take the combs out as quietly as possible, and look them over intently and fairly rapidly, not forgetting corners or openings between the comb and frame. Set the combs, after examination, outside of the hive until all have been removed or until

the queen has been found. Do not forget to look among the bees left in the hive. With black bees, not Carniolans, she will quite often be found off the combs.

4. If the queen has not been found after trying the above I would recommend looking them over one by one and replacing them in the hive, and, if not found, then leaving the work for another time. My reason for advising the latter is because by that time the bees will have assumed abnormal positions, getting into clusters, etc., in the hive or on the combs, and then it is more difficult to find the queen.

5. When hunting for a queen, do not talk about other things; do not think about other things, but do as a writer somewhere once said—say “Queen, queen, queen,” mentally, all the time. In other words, keep your mind on the object of your search, and then you are most likely to find her.

6. Perhaps this should come first of all. If the hive has a honey-board and a bee-space above the frames, you can try giving the colony a fairly sharp smoke, say covering about a minute, and you may find the queen on the under side of the honey-board. This is more likely to be the case with black bees.

7. Never try to clip a queen when the bees are likely to rob. Do not try to find her at such a time. Some of us have to do the latter, but it is not work suitable for a novice. If done, do it as nearly at the close of the day as possible, but not after the shades of night are falling.

Brantford, Ont., Can.

AN UNPRECEDENTED SEASON

BY G. C. GREINER

The past season, unquestionably, goes on record as the best honey season beekeepers of the present generation ever experienced in this locality; and, as nearly as I can judge from reports I have received, other parts of the state were favored in a similar manner.

On page 748, Sept. 15, Mr. J. E. Crane refers to Quinby's book, saying, "Clover will sometimes continue to bloom all summer and yield honey." Then he adds, "Such a season was 1865, as I remember. I have been looking for another for the past fifty years, and it has come at last." That is exactly my experience, except that Mr. C. has fifty years to fall back on, while I can call an experience of only forty years my own. If I am not mistaken, the year 1887 was an uncommonly good honey season—

perhaps the best in my recollection; but it was nothing like the one just passed.

With the exception of a few days between the dandelion and alsike-clover flows, honey has been coming in continuously from the time the early spring sources, such as elm, soft maple, the early fruit trees, etc., yielded nectar, until the middle of October. All my summer's honey-house work, including extracting at the close of the white-clover flow, could be done with the doors wide open, and not a bee would offer to molest me. Even as late as the middle of September bees would improve favorable days with such uncommon display that I had occasion at different times to call members of the family to the beeyard to witness the strange spectacle.

It is not strange—yes, it would be only a

natural consequence—that such an uncommon season would also produce an uncommon honey crop; but the strange part of it is the fact that we had the wettest and seemingly the most unfavorable summer for bees to do field work in many years. Possibly an hour or two in the afternoon, or perhaps a little while in the forenoon, was all the chance they had to go to the field. The fears we entertained during the fore part of the honey-flow, that under these unfavorable conditions the season would turn into a honey failure, were dispelled by our bees. In spite of the many cold stormy days, supers were filling up right along; empty ones had to be given, and finished ones taken at short intervals, so that, by the end of the season, my comb-honey-producing colonies had averaged $6\frac{1}{2}$ supers of finished sections. During the season I have taken from the poorest colonies six, from the better ones seven, and from two (my banner yielders) eight supers of 24 sections each.

All these colonies run for comb honey were divided swarms, or, more correctly speaking, divisions of divided swarms. The parent hives, after two combs of brood with adhering bees and the old queen had been taken, were moved to a new stand, and a young laying queen given at the time the divisions were made. The two combs of brood with the old queen and some empty combs were placed in a new hive and left on the old stand to catch the flying bees. These new swarms were run for extracted honey, and averaged between 140 and 150 lbs. each.

All my white honey brings me 20 cts. per section at retail, and 16 cts. in crate lots at the stores. Weight, to a certain limit, is not taken into consideration, all sections selling at the same price. Of course I am very careful in sorting my honey. Everything below $13\frac{1}{2}$ oz., which I decide by eye and lifting (no scales are used), is not passed as full weight, but sold at a correspondingly low price. Darker grades, such as amber and buckwheat, are also sold for several cents less per section. I do not furnish any crates, but reserve them when sales are made. As I do all my delivering myself I have no expenses for freight or express to meet, neither do I have to let middlemen share my profits. I can not give the exact average price I receive per super; but as the larger part of my crop is white honey, and a good share of it is sold at retail, it is not far from \$4.00 per super, which would be for the average yield of $6\frac{1}{2}$ supers, or \$26 per colony.

The other divisions, those with the old

queen and flying bees, have done nearly as well in number of pounds; but in extracted honey I have no data to compute their average yields in pounds and ounces; but I have some means for ascertaining their yields quite closely. Every super, every comb of honey, and every section taken from my hives, is carefully recorded on the inside cover of the hives, so that, by simply lifting the outside cover, the progress of every colony is revealed. To this my beekeeping friends from different parts of the state who have visited me at different times during my season's campaign, and have inspected my beekeeping outfit and management can testify.

As I have frequently weighed supers before and after extracting, also single combs when I felt especially interested in their weight, I can quite closely estimate the yield of a colony by consulting its record.

By far the largest share of my extracted honey, perhaps nine-tenths of my crop, is sold at retail, and nets me, when put up in pint and quart cans, $14\frac{1}{2}$ cts., and in jelly-glasses 16 cts. The largest package, the quart can, seems to be the favorite of my customers, while the sale of the jelly-glasses is comparatively limited, and takes only a small part of my crop. The average price is, therefore, very little above the price of the larger package. But these prices are for white honey. About one-fourth of my crop is amber and buckwheat, for which I get from one to three cents less per pound. This would reduce the average price of the entire crop to about $13\frac{1}{2}$ cts. As stated above, the yield of my colonies run for extracted honey was from 140 to 150 lbs.; and taking the medium, 145 lbs., as a fair estimate, it brings the income of these colonies to \$19.57 each; and, with the product of the comb-honey divisions added, to \$45.57, spring count.

This yield of the past season has no precedent in my forty years of beekeeping. But it is not all due to the season. It is the result of combining season and management. The method which I have adopted and successfully practiced during the last four or five years gives me, besides unusually heavy yields, other advantages that help to reduce the unpleasant work of the bee-yard in a great measure. First in this line stands practically perfect swarm control. Every comb-honey-producing beekeeper knows by experience the deplorable sight that meets one's eyes when a colony sends out a swarm that has two or three supers well under way on their hive. This does not happen to me except in very rare cases. None of my comb-honey-producing colonies



All the supers had been removed from the hives (G. C. Greiner's apiary).

swarmed this summer, and only one of the divisions run for extracted honey swarmed normally during the white-clover flow. Later in the season I had five superseding swarms from the same divisions—those with old queens and flying bees. Two went back of their own accord, and the others I returned to their home by taking their queens away when being clustered on small trees or berry-bushes.

As my method insures me this much-desired swarm control I have no queens to clip; no queen-cells to hunt and destroy, no shaking off or running after young swarms—nothing of the kind; in fact, I have hardly opened a brood-chamber after all colonies had received their full equipment of combs at the beginning of the white-clover flow. Instead, I can spend all my time forcing the production of surplus honey, and my bees are not troubled with swarming notions, but are bent on expending all their energy in the super work.

Another advantage, and one of great importance in producing a heavy yield of surplus, is the breeding-up of a hive full of young vigorous field workers at the right time. My method brings this about.

On page 831, GLEANINGS for Oct. 15, the editor justly cautions the comb-honey producer against the use of bait sections and finishing up sections by feeding back extracted honey. From experience I can endorse every word he says, but with this proviso: "If not properly done." Both fea-

tures are an important part of my method, and are the means of my unusual surplus yields, and, in a certain way, the prevention of swarming. To produce desirable bait sections they must be drawn out and filled, taken from the hive, extracted and cleaned by the bees as soon as possible, and then stored in air and dust proof compartments until wanted. Honey produced on bait sections managed in this way is in no way inferior to any produced in the usual way. It would puzzle the honey-expert as well as the every-day consumer to detect the difference.

It is the same with feeding back to finish sections. It must be done properly. Feeding must begin before the honey-flow entirely ceases. Sections to be finished should not be off the hives any longer than is strictly necessary to prevent them becoming stale at the cell-tops, and feeding must not be allowed to suffer any break from beginning to end. If the honey to be used for this purpose has not been extracted in its green state, when still nectar, it must be diluted to about that consistency. Some of my best fancy honey, exhibited at the fair, was finished by feeding. However, from a honey-producer's standpoint I admit that both features, bait sections and feeding, are detrimental to the quality of comb honey, but not any more so than the use of full sheets of foundation.

The accompanying illustration was taken after all the hives were stripped of their

supers, except one at the lower end that was used for finish work. Supers and feeder are still on the hive. The row in the middle

contains mostly colonies that produced the unusual crop of comb honey described.

La Salle, N. Y.

PARALYSIS AND THE ISLE OF WIGHT DISEASE; ARE THEY THE SAME?

BY F. R. BEUHNE

In the Nov. 15th issue the editor, p. 922, asks for information as to whether the bee-paralysis of Australia and of southern United States is the same as the *Nosema apis* (Isle of Wight disease) of Great Britain. This is exactly what we have been endeavoring to determine ever since the presence of the nosema parasite in Australia became known in 1909. All the evidence up to the present is negative to the proposition that the two diseases are identical.

Shortly after the discovery of the parasite, bees were obtained from 88 apiaries covering five out of the six states of the commonwealth. The parasite was found in the first 20 bees from 86 apiaries. Repeated microscopical examinations of bees from the two remaining apiaries failed to show *Nosema apis*. One of the two clean apiaries was 100 miles inland at Wangaratta. The other was the Departmental apiary at Burnley, close to the city of Melbourne. A visit I paid to the Wangaratta apiary showed that bee-paralysis was present, altho nosema could not be found. The Departmental apiary at Burnley was free from both paralysis and nosema. Queens from colonies affected with paralysis were brought from inland apiaries and introduced to several colonies at Burnley. Symptoms of paralysis appeared in from five to six weeks later. Bees from these stocks were then examined, and at intervals later by Mr. W. Laidlaw, B. Sc., Biologist of the Dept. of Agriculture, who also made all previous and subsequent microscopical examinations, but no signs of nosema could be found, even in bees which were in the final death throes of paralysis. Finally the queens were removed, also dissected, and found clean. Queens of a resistant strain were introduced in their places, and in a little over two months all signs of paralysis had disappeared. This experiment was repeated several times in succeeding seasons, and the result was exactly the same. On the other hand, *Nosema apis* was found in bees affected with paralysis when they came from apiaries in which the presence of the parasite had been proved, the degree and percentage of infection being the same, whether the colonies showed symptoms of paralysis or not. Incidentally

I may here mention that I have repeatedly effected a cure of the most pronounced cases of paralysis by exchanging the brood of the affected colony with that of a normal colony, at the same time removing the queen of the former and allowing a queen-cell of a different strain, and raised in a normal colony, to hatch and mother it. The curious thing is that, altho, as might be expected, bees continue to die for some time after the exchange of brood in the affected colony, yet none of the bees hatching from the combs of the affected stock, and given to a normal one, show any symptoms of paralysis, which seems contradictory in the face of the fact that paralysis can be produced in any colony by the introduction of the queen of an affected colony.

Reverting now to *Nosema apis* I must point out that, altho the parasite was found in 86 out of 88 apiaries, the localities from which some badly affected specimens came had never suffered any losses. The colonies showed no symptoms, and were profitable. Further, outside the two apiaries mentioned, it seemed impossible to find bees free from nosema. Even bees from trees in the forest had it, also some of the worst-affected colonies with a little judicious help recovered, and developed into prosperous and profitable stocks.

In view of all this, it did not seem advisable to adopt the drastic treatment of destruction of the bees and combs which is recommended by the British authorities. Quite early in the investigations it became evident that contributing factors were necessary for the parasite to become harmful. Considering the wide distribution revealed by the investigations, it appeared quite hopeless to attempt the total destruction of the parasite, and more advisable to try to find the contributing causes. With this object in view, queens and their escorts from hives proved to be affected with nosema were introduced to a number of colonies at the Burnley apiary. The biologist, at intervals of two and three months, examined bees from the colonies experimented with, and at no time could nosema be discovered in the bees. Becoming bolder, we next transferred 14 badly affected colonies from

inland to the Burnley apiary. These were very small, and could not have recovered without some assistance. A comb of hatching brood was therefore given to each. In three months all of them had completely recovered, and showed no trace of *nosema apis*.

In view of the success obtained, a further and somewhat larger experiment was made. In January, 1915 (which, of course, is summer here), 24 colonies were selected from an apiary 60 miles from Melbourne. Microscopical examination of bees proved all of them to be infected with *nosema*. Nineteen of these were sent to the Burnley apiary, while five were left behind as controls. In May examinations of all were again made by Dr. Laidlaw, and showed that, of the 19 shifted to Burnley, 16 were now clean, 3 were still affected, but in a lesser degree than in January. The 5 controls still retained the parasite.

Owing to much brood-rearing without an income of nectar it became necessary to feed the 19 colonies in May. Fifteen were given sugar syrup, and four some dark honey of unknown origin obtained in the open market. In spring (September) the examination made showed that three out of the four which had been fed honey were rather badly affected, and only one of the sugar-fed, slightly. Of the controls, two

succumbed during winter, but the remaining three were now clean.

The fact that three out of the four colonies (which were clean at the previous examination) became infected after being fed honey (which possibly came from old brood-combs), that one, altho given exactly the same, remained free, opens up several new issues for further investigation.

The infection of one of the sugar-fed colonies may be accounted for by robbing, of which a little took place at the time.

That the surviving control colonies rid themselves of the parasite may indicate that, under the stimulus of a plentiful supply of good pollen and new nectar, bees are able to throw off the disease in spring. This also applies to the Burnley apiary, where, owing to its location among artificially watered flower-gardens, and the vicinity of the river, there is never a dearth of normal pollen. Nothing is finally proved by the experiments, and I have departed from the rule to publish nothing that is not complete, only with the object of indicating the directions in which a solution of some of our troubles may be looked for, which I take to be the inherited vigor of the strain of bees together with a plentiful supply of good nitrogenous food during the period of their infancy.

Tooborac, Vic., Australia.

THE NEW BEE DISEASE; MORE LIGHT WANTED

BY GEO. W. BULLAMORE

A few years ago I found it necessary to read thru the descriptions of the Isle of Wight disease written by thousands of the beekeepers of this country who had suffered losses. I soon found that, with regard to the symptoms, the definite statements of any one beekeeper were usually at variance with the recorded experience of some other beekeeper, and that the only point on which all writers were in agreement was that there had been a heavy loss of bees. I am reminded of this when reading the accounts in GLEANINGS of "that Western bee-disease." While some are claiming that the disease disappears as the result of the sulphur treatment, another states that the cures are apparent only, and the bees dwindle away and eventually die out. One writer does not think the weather has anything to do with it. To others, weather is the chief or only cause. Some speak of it as a form of paralysis, a disease known to attack the adult bees only, while other accounts mention the rotting brood. A constant feature

of the reports is the crawling bees. This was the case at first in the descriptions of Isle of Wight disease in England; but a careful study of the course of the trouble in districts and apiaries for a year or more convinced us that a symptom of this nature was associated with the dwindling of stocks without sign of dying bees, and also with abnormal winter losses when the bees were found dead in heaps on the floorboard. Whether a sick bee dies inside the hive, in front of it, or away at the pasturage, probably depends on a number of factors of which the organism causing the trouble is but one.

A good account of a trouble which we should diagnose as Isle of Wight disease is given by Critchlow in GLEANINGS for 1904, page 692. The loss of several thousand colonies in Cache Valley and Salt Lake Valley is described. Other accounts are given by Bedell, 1909, page 412, where losses in New York State are recorded, and by Fawell, 1909, page 704, who tells of heavy

losses in Ontario. An interesting statement was also made by James Heddon when discussing the question of wintering at a meeting of Michigan beekeepers on December 1, 1875. He attributed the heavy losses in Michigan to an *intestinal disease*, and said, "In the winter of 1871 two of my neighbors had 65 and 85 stocks respectively. In the following spring they had but one apiece left. All the other bees kept in the vicinity died." We are but too well acquainted with this form of loss in districts where Isle of Wight disease gets a footing.

It should be borne in mind, when comparing the English with the American disease, that our observations in England are made chiefly upon bees in which the native black predominates. On the other hand, many of the American descriptions refer to losses which have taken place in apiaries where the bees are pure Italian, or nearly so. We know, too, that the Isle of Wight disease varies considerably in accordance with weather conditions, so that the double factors of race and climate are bound to affect the American manifestations of nosema disease. In regard to weather, so far as can be traced, epidemics of bee-disease in this country have always been correlated to wet seasons. The epidemics of 1782-'3, and 1860-'3, were associated with wet summers, and an outbreak of paralysis occurred during a long run of wet years which terminated in 1883. Bees do well here at times, owing to the fact that our climate consists of long irregular spells in which dry years predominate, alternating with spells in which wet years predominate. We are now in one of the wet cycles. Rainy springs and autumns aid in the spread of parasites, probably because for breeding purposes the bees carry in so much water from the paths and foliage in the vicinity of the hives. When intestinal disease is present this may be grossly contaminated with infected excrement. Indirectly, too, wet and cold weather may act by influencing the quality and quantity of the food, and by lowering the resistance of the bee to disease.

The American reports often suggest adverse weather conditions as being a factor in outbreaks. The probability is that most bee diseases, and particularly those in which the causal organism is to be found in the intestine of the adult bee, are rendered worse by the occurrence of wet and cold weather.

The nosema organism is reported to be present in the bees of the United States; and as this organism is associated with Isle of Wight disease in this country I have very little doubt that it is at the root of some of

the trouble in America. The newspaper cutting from the *Seattle Times* reads like Isle of Wight disease; but when we read the description of the same trouble as given by M. Y. Calcutt (1915, page 714) we find that rotting brood is a prominent feature of the outbreak. Confirmation of the brood trouble as a symptom is given by P. C. Chadwick in his description of the California outbreak. A. L. Hartl, Texas, page 21, adds the interesting detail that in his case the dead brood was diagnosed as sac brood at Washington. Rotting brood was certainly not a feature of the disease on the Isle of Wight and in other districts that came to my notice. I have handled hundreds of combs of diseased stocks, but have never found any great proportion of them to contain rotting brood, certainly not more than would be affected with foul brood when Isle of Wight disease was not present. In the majority the brood presents a perfectly healthy appearance, and, if transferred in time, will hatch in other hives. In warm weather I have seen brood hatching in a hive from which all the adult bees had disappeared, and on one occasion I took some sealed brood from a moribund hive and hatched it in an incubator for purposes of study. This is the appearance of Isle of Wight brood *as I know it*, and it is, therefore, difficult for me to reconcile it with the accounts of the western disease.

I am reminded, however, that about 1890 an epidemic which attacked both brood and bees was raging in Italy. Investigations were commenced, and Professor Canestrini isolated a bacillus of the megatherium type. I believe that he failed to establish its pathogenicity, and nothing more seems to have been heard of the disease. Have the West rediscovered it?

If it is correct that Professor Kincaid has discovered spores in the heads of the bees we should expect to find that the glands were diseased. The poisonous products of microbic activity (toxins) might be fed with the gland secretions to the larvæ, and the result would be that the larvæ would die. Under the microscope the dead larvæ would resemble those killed by the filterable virus of sac brood. Personally I have never met with such a condition in any examinations I have made, but have always borne in mind the possibility of its occurrence.

In the present state of our knowledge, or at any rate until it is certain that all the losses in America are accompanied by rotting brood, it is advisable to retain an open mind as to the relationship of the western disease to the English malady, which appear to be directly fatal to the adult bees

only. There can be little doubt, however, that sometimes the heavy losses in America are due to genuine Isle of Wight disease, and therefore some account of the effects of treatment may prove helpful. In the con-

quest of disease every failure narrows the field to be covered, and the lesson gained may direct others to the path which leads to success.

Albury, England.

AN EASILY CONSTRUCTED ELECTRIC WIRE-IMBEDDER

BY E. L. SECHRIST

The electric foundation-imbedder that I am using is easily made from odds and ends, and therefore it costs almost nothing.

For electricity to heat the wires I use the regular lighting current, running it first thru a common electric flatiron, which, after some experimenting, was found to provide just the right amount of "resistance."

To convey the current to the wire I use what I call the goose-neck made of two pieces of heavy insulated copper wire, the ends of which are flattened into wide chisel points at the end where they are to come in contact with the wire of the frame. Pressing on the treadle beneath brings these copper wires down in contact with the wire of the frame long enough to heat the wire to the desired point.

The peculiar form on which the frame is placed to do the imbedding is the result

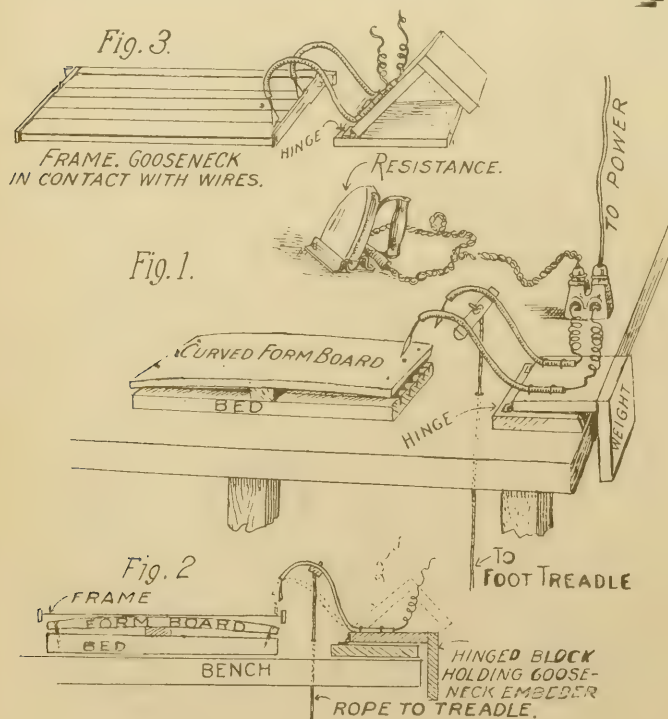
of considerable experimenting. It is a 3-16-inch board of a size to fit loosely inside a frame. As shown, a $\frac{1}{4}$ -inch cleat is placed under the center while the ends are nailed to the board beneath. This makes an easy curve. The edges are all rounded off, and the form is blocked up from the table enough to make it convenient.

The sheet of foundation is fastened in the top-bar by any method, and the frame placed on the form with the wires on top of the foundation. The advantage over other imbedders is that both hands, not one only, may be used to adjust things and bring the wires into close contact with the foundation in case of any irregularity. When all is ready, press the treadle until the goosenecks touch the wires on the inside of the frame, just where they go thru to be fastened by the tacks. As soon as the points

are in contact with the wires it is a delight to see that wire sink down to the midrib of the foundation all over the sheet, while the cell walls close up behind it, imbedding it so solidly that it cannot come out.

As soon as the wire is imbedded to suit you, remove pressure from the foot lever. The connection is broken, and both hands remain in place on the frame holding the wire in place until it cools. All this takes only an instant, and the imbedding is done more perfectly than I can do it by using only one hand to hold the frame in place while the other hand operates the electric connections.

Fairoaks, Cal.



HOW THE BEES HELPED TO PRODUCE A RECORD CROP OF APPLES

BY GEORGE H. WEST

I want to tell something about the pollinating of the fruit-bloom in my orchard in the spring of 1911, as the crop I had that year (amounting to over \$11,000) was the greatest the orchard ever yielded.

There are some twenty-eight acres of bearing apples on this forty-acre square, the rest being largely in alfalfa located in the southeast corner. In 1909 and 1910 also I had good crops from the orchard as I had plenty of bees on the alfalfa ground. The winter of 1910 was severe, and the owner of the bees lost most of them. Very early in the spring, having bought land about a mile northeast of the orchards, he removed to his own land the bees he had left.

On going into the orchards about May 1 I was startled by hearing no bees among

night to a location in the northwest corner of my orchard. This location was chosen for two reasons. First, Winesaps, of which there were twenty-two acres, are rather poor pollenizers, but are very receptive to the pollen of other apple-trees; and the Ben Davis, Missouri Pippins, Jonathans, and Ganos in my neighbor's orchards joining my land north and west, are all good pollen-bearers. Second, our prevailing winds are from the northwest and west; and as we have many high winds I believed the bees would work better from that location.

During the blooming period the weather was bright and warm, and two days after moving in the bees when I went over the orchard again I heard the humming of bees everywhere.

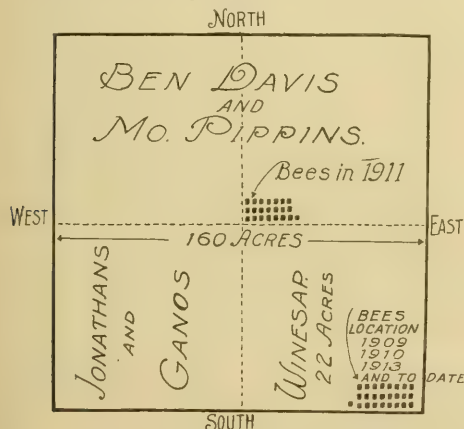
After the blooming period, and when we began spraying, the owner removed the bees. I never had bees as near my Winesaps as I had that year, and have never had as large a crop before nor since. The bees were about the center of the 160 acres, nearly all in apples, and my neighbors also had record crops that year.

The Winesap tree shown in the illustration* is one of 952. In 1910 this tree yielded twenty field-boxes (bushels) of apples; and in 1911, the year this photograph was taken, and the year the bees were so close, the tree yielded thirty-six bushels in spite of the fact that the young fruit was thinned down twice. From this tree we packed thirty bushels of apples which sold for \$44.50 cash. The 952 trees averaged over seven packed boxes per tree that year, netting me over \$10 per tree.

In conclusion I wish to say that I have good pollination and plenty of bloom every year; and, except for the hazards of the winter and spring freezes, and damage by hail, I should have good apple crops every year.

Colorado Springs, Col.

* Cover engraving of this issue.—Ed.



the blossoms which were just opening. I went carefully over the whole orchard and some others adjoining it, but there was silence everywhere instead of the usual humming of the bees. I became alarmed, for I knew that, if there were no bees, there would be no apples. Altho the loss in bees the winter before had been serious, as I have said, by some effort I secured twenty vigorous colonies and had them moved that

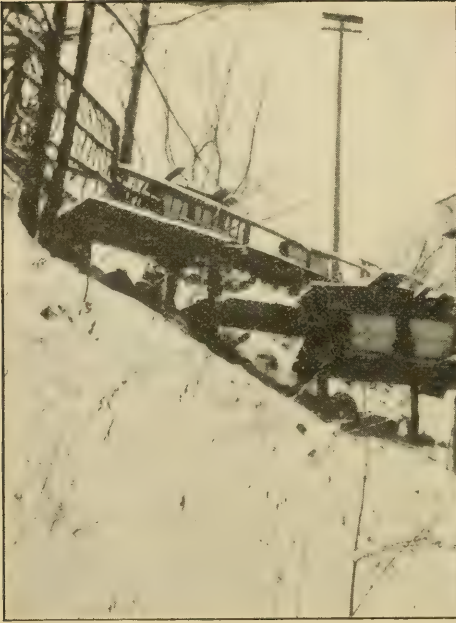
SUBURBAN BEEKEEPING

BY J. H. DONAHEY

[Mr. Donahey, as our readers know, is the cartoonist of the Cleveland *Plain Dealer*, whose clever work attracts attention from all parts of the country. He was a beekeeper before we became acquainted with him, and it was the occasional beehive in his cartoons that made us suspect that he knew something about bees. He is the originator, of course, of the Backlot Buzzer.—Ed.]

I am sending you a few snapshots taken in my small suburban backyard. It overlooks a ravine, and is on a timbered hill sloping

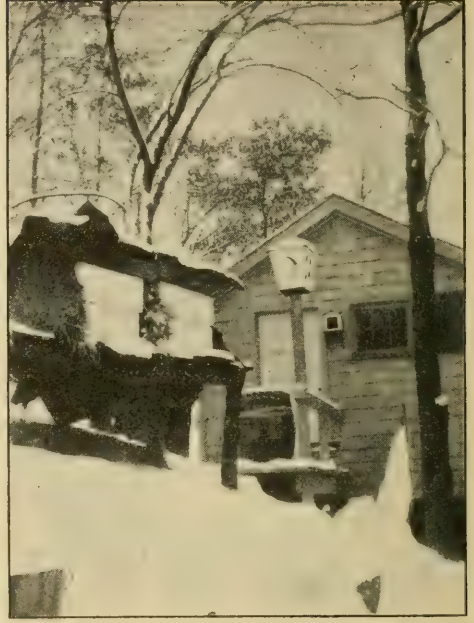
to the east, and was utilized as the only available place where the hives could be located. Running thru the valley is a small



The hives are located on a hillside, the only available spot in the lot. The scaffold keeps the hives from the wash of the hill, and permits easy handling from the rear.

stream where the bees go in the springtime to get their first drink.

The hives rest on platforms built on the side of the hill, and are two or three feet high and operated comfortably from the rear, where steps are arranged to get up



The beehouse with a root cellar underneath is a fine place for a city man to spend a rainy day.

and down the hill. The high scaffolds prevent the wash from the rain from damaging the hive.

Walks lead to the beehouse where the material is kept, and many pleasant hours of education and amusement are spent there every year. Underneath the building is a root-cellar, a luxury for a city-dweller; and between the whiffs of pippins in the winter and the delightful half-hours sitting in the shade on the porch watching the bees scurry in and out during a honey-flow, the man who spends his working hours in a great city finds it a rare pleasure indeed.

The children who come to learn of the bees have been told that the building is a "grouch" house. They have sought high and low, from roof to root-cellar, and under the porch, but never a "grouch" can they find. I always tell



Below the beehouse there is a stream where the workers gather for water in the springtime. To sit on this porch and watch them rush in and out of their homes during a honey-flow is a privilege that few city men can enjoy.

them that it is there when I am there, which leads to questions, and sometimes I almost have to confess.

"Tony," who works around the yard and the garden, slept for a time in the "grouch" house. His cot was directly under a skylight and near an observation hive, which we had arranged inside the building, permitting the bees to enter thru a small box from the outside. For some reason or other, probably from the settling of the building, the box slipped loose from the wall, and

many of the bees flew up and tried to get out thru the skylight, and, failing, dropped down on Tony's bed. It was dark when he came in that night, and, being tired, he did not light the lamp; and, undressing, he hopped right into bed, and straightway he hopped right out again. It was three miles to the place where his people lived, but he was back at seven in the morning, ready to go to work, but in appearance he was not quite the same Tony.

Cleveland, Ohio.

THE GOLDENS VS. THE LEATHER-COLORED ITALIANS

Have the Criticisms of the Golden been Too Severe?

BY M. E. BALLARD

[In the following few pages we are presenting the discussion promised in the editorial, page 217, March 15. Since some have felt that GLEANINGS has not given the goldens a fair chance, we are publishing here practically all the letters we have received favoring the goldens. Furthermore, and because the experience was limited to only a few colonies, we have thought best to withhold several letters supporting Arthur C. Miller's condemnation of the goldens. In order to be fair to all, we are not publishing the names of the breeders who have contributed the four articles marked "By Breeder." We believe that all the breeders of golden Italians who advertise in GLEANINGS are thoroughly reliable. Our own view of the whole question is fully set forth in the editorial above mentioned.—ED.]

Mr. A. C. Miller, p. 116, Feb. 15, cites a series of cases of improper acts which are credited to the goldens. In case 1 the bees failed to select larvæ of the proper age to raise a queen. Will not black bees or leather-colored Italians do the same thing?

Case 2. This combination is wholly unnatural. Mr. Miller had, in that nucleus, bees from two different colonies. The bees which were on the frame of brood with the two queen-cells were in need of a queen, or otherwise there would have been no queen-cells on the comb; and as these bees were united with the nucleus they failed to unite properly—at least failed to recognize this strange virgin queen—and continued to build and draw out the cells on their original comb. That is strictly in accordance with nature; and who would expect bees to do otherwise?

Case 3, while rather peculiar, I think needs some correction, for at that stage it would be difficult to determine just when those laying workers began laying. Nevertheless, since the hive was for a time queenless, and working bees had thrust upon their organs the task of producing eggs, what should we expect those laying workers to do with those eggs when developed? Perhaps Mr. Miller will say they should have gone out on the alighting-board and dropped them in the grass.

Case 4 illustrates their "bad temper," and this I consider too unreasonable to comment on; but I should like to ask if there was any robbing going on.

Mr. Miller also states that "true pure leather Italians" are extinct, so far as he can find. I am wondering if they ever existed. Did any one ever see a colony of "pure Italians" without a yellow trace in their makeup?

Mr. S. H. Burton also condemns the goldens. He does not explain why; but from what he writes we take it for granted that the reason is because his bees came near starving to death. This throws no light on the subject unless Mr. Burton had a percentage of leather-colored Italians, and made comparisons which he fails to state. There were bees that did actually starve to death in this locality under similar conditions in June, blacks as well as Italians; so is that any reason to condemn goldens? As the Caucasians excel Italians as honey-gatherers, a cross between these two should make an improvement over Italians so far as honey-gathering is concerned. Will Mr. Burton kindly inform us what breed of bees those were that went into winter quarters in the best condition?

In discussing the qualities of the goldens, will some one with experience, who is inclined to condemn them, tell us "why and what for," and not condemn them for something that is just as common among leather-colored bees and blacks?

The only doubt I have as to the efficiency of the goldens is their wintering qualities, and at present I am not prepared to say whether that is below the standard.

Roscoe, N. Y.

IF AT FIRST YOU DON'T SUCCEED (WITH GOLDENS) TRY, TRY AGAIN

BY A. T. RODMAN

The bees of my first colony of goldens were so cross that I could do nothing with them. I killed the queen and thought I would try again some time. At this time I had a strain of bees that had the reputation of being as good as any three-banded bees in the United States.

The next spring I tried two golden queens from Arkansas. They were fine queens, and were the first to go into the supers. But about this time my neighbor put out a washing and they ran her in the house; also some little chickens were badly stung; in fact, everything that came in reach got stung. I decided to exterminate them; but how was the question. I waited till night, and then put a weak colony in their place, and put them in a secluded place. The next day the field bees returned to the old stand and were peaceable. As there were only young bees left in the hive with the golden queen I had no trouble in getting hold of her. Was I discouraged? Not at all. I still believed these were good goldens, and I ordered another queen from the East. She was not so cross, but she was not as golden as she should be, and was inclined to produce lazy bees. She was also removed in due time.

Still I was not discouraged, and commenced to look around for more goldens. I drew two more failures, but I finally secured a golden queen the equal of any queen I ever owned. Being a little afraid on account of my former experience I introduced her to a weak colony some twenty miles away. She came thru the winter stronger than any other colony. Her bees were gentle, and seemed to be fairly crazy to get into the hive with their loads of honey. I brought her home on four frames of bees and brood, and she beat everything on the place that season. I raised queens from her for two years, and am still requeening from the same stock, and expect to continue to keep on doing so long as I have bees.

Now, I don't expect to have any queens for sale this season, so this is not a ruse to get free advertising.

These bees suit me better in many ways than the three-banded. They are better hustlers, are more gentle, and keep the moths out better than the three-banded. They never produce a lot of bees that shine like a stovepipe, and seem to be deformed, having large heads and small abdomens.

Kansas City, Mo.

IN FIVE YEARS THERE WILL BE MORE GOLDENS THAN EVER

BY H. M. MOYER

We have more golden Italians at present than we had five years ago. Why? Because they are good bees. I tested almost all the bees, including the Cyprians and Holy Lands. The Cyprians are extra good in every respect, except they are cross. I tested blacks, dark Italians, and golden Italians side by side.

I have been a practical beekeeper for some 35 years. Goldens are gentle and

fast breeders. The queens are large as well as the bees, and are good honey-gatherers. They winter well in spite of what is said against them.

Five years after this we shall have more goldens than we have today. The Feb. 15th number was too hard on them. I have no queens nor bees for sale, and hence am not interested.

Boyertown, Pa.

GOLDENS ARE BRED BY COLOR SELECTION FROM ITALIANS

BY A BREEDER

Beyond doubt there are some strains of goldens which are practically worthless. To say about all, "they are no more Italians than an Ethiopian is a Caucasian," is simply to tell what is not true of the best strains. If Mr. Miller denies that one can breed goldens by color selection from Italians he is crazy. That is just what is the matter with many strains of goldens. They

are bred for color until that is all they are good for. There would be no cause for such criticism as Mr. Miller's if the papers prohibited advertisers making extravagant claims about their stock.

Now don't get the idea that I am a golden breeder, peevish in what I say, for I sell about six three-band queens to one of the golden.

GOLDENS THAT ARE WORLD-BEATERS

BY A BREEDER

On page 63, Jan. 15, A. C. Miller speaks of killing 20 old queens in full colonies and smoking in a like number, all in 45 minutes. Now, I have no doubt caught and caged more queens than Mr. Miller ever saw—from one or two to one hundred a day during the queen season for the past 15 to 18 years—and I'll say right here the man who catches and cages 25 queens an hour from *nuclei* is going some; and it is an altogether different proposition finding queens in full colonies. It *might* be done once, but I have my doubts.

As to the "curse of the goldens," I have before me a letter from a man in Idaho who seems to take kindly to the "curse of the industry," as he orders 200 of them and reports 250 pounds of comb honey from a colony headed by one of these "curses." Don't you think it would be well for the industry if there were more of the "accursed" kind?

I realize that there are, no doubt, goldens that may not be all they should be; but did you ever think of the great number of three-banded bees that are in the same boat? Why don't we hear from them? For a number of years I have had goldens and three-banded bees in the same outyard, and these three-banders were as good as any in the world; and if there was any difference in the production or disposition I failed to find it.

You find some people who have a twisted conception of life and what it means, and are inclined to get out their little tack-hammer and knock everything in sight that they may have taken a childish dislike to. Now, this does them no good, and might do others harm. Personally I do not care for Caucasians, for they are not the bees for this location; but I do know they are hard to beat where you have several good flows during the season. I never knock them, because, for certain sections, they are *the* bee.

If we are to believe Mr. G. M. Doolittle (and I know of no more truthful man), goldens have been bred up from the three-banded bees, and not by crossing with Eastern races—at least his have; and you will find, by writing to breeders of golden queens in the United States that at least half of such breeders have founded their stock on the rock of Doolittle. There are breeders of golden queens who are giving their best efforts to producing a strain of bees that will be world-beaters; and I'll tell you right now that they have about reached the desired goal. It takes a greater intelligence to rear goldens than some other strains. The more difficult it is to reach a desired result, the harder you must work and think and plan; but if you keep at it long enough you will succeed.

THOUSANDS OF BEEKEEPERS PREFER GOLDENS

BY A BREEDER

I have been in the bee industry over 20 years, and have tried and tested all kinds of bees side by side. Taking everything into consideration, the goldens have proven the best and most gentle. They will gather more honey than any other strains with double the quantity of bees. I have only goldens now; but I will not try to run down any race. There are some very good bees of the dark races. The best and oldest beemen in this country praise the goldens, and

recommend them. The editor says that one who buys goldens or extra-yellow bees is likely to receive bad and good stock. I would ask if it would not be the same in case of the three-banded. I think it is getting time for those who have goldens to stand up for the superiority of these (the disease-resisting strain). I know there are thousands of beemen who would not have any bees except goldens, no matter what any one says.

THE BRIGHTEST GOLDENS ARE THE GENTLEST

BY A BREEDER

Mr. Miller is very evidently biased on the subject, and in support of this I cite his assertion that goldens were the cause of laying workers. Why blame the poor bees

just because they were yellow? One would infer from his assertion that laying workers are found only in golden colonies.

It is not color that influences me in decid-

ing on goldens. I know that a great many prefer the so-called leather-colored or three-banded Italian; but it has been my observation that my brightest yellow bees are the ones easiest to manipulate, and they are better workers. I use no veil or smoker on my yellowest ones, but the ones showing a tendency to three bands or leather color I have to subdue before manipulating.

I do something in the way of demonstrating at fairs, and I always use my brightest yellow goldens to work with, frequently demonstrating on cool cloudy days, when, to open a hive of dark bees, would be to invite serious consequences. Among my favorite stunts is to shake a whole derby hatful of bees on top of my head (and there is not much protection left there any more).

Now as to Mr. Miller's query regarding behavior of the six hives of goldens that were previously gentle, a possible explanation is that, as long as they were *pure golden*, they were gentle (which he admits). On superseding the old queen her daughter would still show the racial characteristics, even if she should mate with a hybrid or black drone, and would still produce apparently golden bees.

Another reason is that the source of nectar, or, rather, the lack of a source of nectar, was the cause. He also states that the bees were in the hands of beginners. Ah! Any race of bees if handled in a careless timid manner is apt to resent it. If the bees were tinkered with six days of the week by a novice Mr. Miller could not expect to find them the acme of gentleness.

A HUNDRED DOLLARS TO GET RID OF THE GOLDENS

BY D. E. LHOMMEDIEU

Mr. Miller is right. A number of years ago I was desirous of getting some new blood into my stock. At this time the late Mr. Alley was advertising a dozen golden queens, every one a breeder, for \$10 per dozen. I received a dozen by mail. They were so bright, and they came thru so well, that I ordered three dozen more, and introduced them into four different apiaries.

The next spring about cured me of goldens. To make sure, however, I got some queens of another breeder, but they were very little if any better. They are not like honeybees. It cost me over \$100 to get them cleaned out of the yards. But the goldens have one good quality—they are handsome.

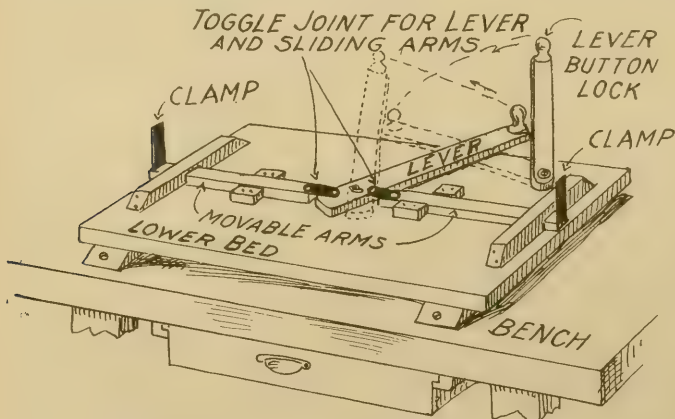
Colo, Iowa.

A CALIFORNIA YANKEE'S METHOD OF WIRING FRAMES

BY S. A. NIVER

Perhaps my wiring-clamp will interest some beekeepers who have found the wiring of brood or extracting frames very puzzling. It is a slow tedious job at best. I have taken several ideas from the bee-jour-

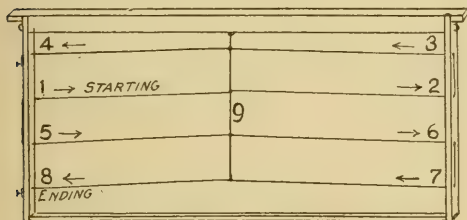
nals, and combined them into a simple device for holding the frame rigidly and squarely. It is easy to fasten the frame in position and release it, and the wires are strung tighter than by any other plan I know of.



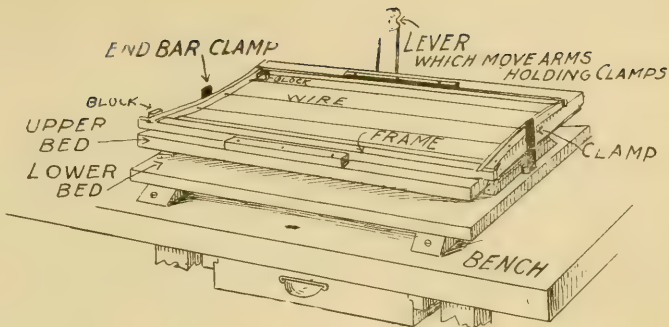
It is a double-decked affair. Fig. 1 shows the lower deck with the lever arranged to pull the iron lugs against the end-bars, bending them in toward each other, while the wire is threaded. No. 2 shows the upper deck with a frame in position with the lever pushed to the left, and held in place by the "button." The clamp is fastened to the bench by means of a

couple of screws so you can yank the wire as hard as you wish. After stringing the wire in the frame and releasing it from the clamp the end-bars spring back and draw the wires very tight.

In this locality, where the sun is hot and honey thick, I have found the cross-wiring scheme an excellent plan, worth all the trouble and more too. Fig. 3 makes it plain. I buy the wire



in the coil, and make a spool to fit it that revolves on a spindle attached to a frame fastened at the end of the bench. After



threading the end of the wire thru holes 1, 2, 3, 4, I tack it fast, then cut the wire at the spool and thread the other end thru Nos. 5, 6, 7, 8. One can avoid kinks in the wire that way.

A magnetic tack-hammer to pick the tacks up from the upper deck and start them in the proper places is handy.

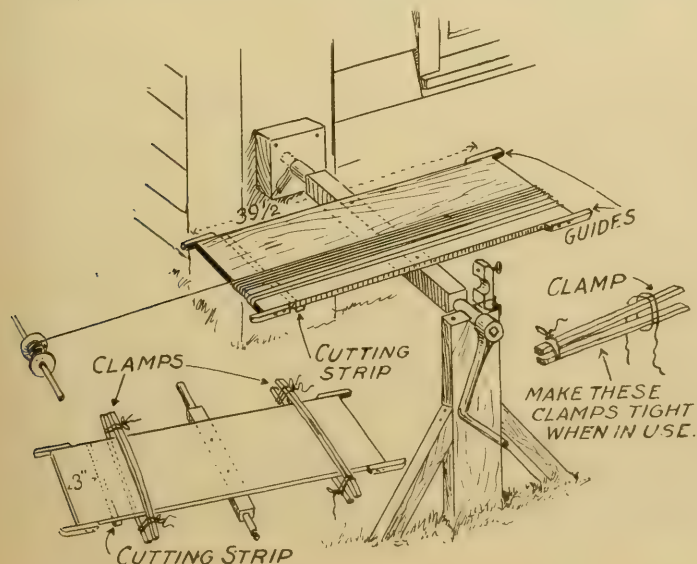
We extract in the upper story of our honey-house, run the honey thru pipes immersed in hot water, into six-ton tanks below. It gets thin enough to strain thru fine cloth. This was illustrated in GLEANINGS some time ago.

Greenfield, Cal.

MY WIRE-REEL AND WIRING-BOARD

BY J. E. JORDAN

The illustration shows my wire-winding device. By using this device, all the wires will be of the right length to wire fully the frames, and all will be cut at one stroke.

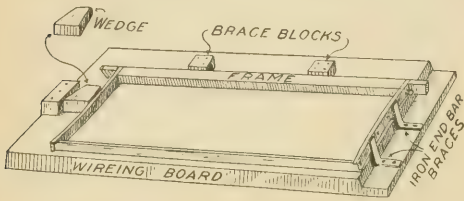


To make this, bore a hole in a block and nail the block to the corner of your honey-house. This will serve as a bearing for one side of the reel. Put up the framework for

the other side of the reel as shown. Select a board $\frac{1}{2} \times 7 \times 39\frac{1}{2}$ inches, and exactly in the center nail the axle, a square piece of wood, rounded at the ends as in the illustration. Nail a small strip, $\frac{1}{2} \times \frac{1}{2} \times 7$, across the board 3 inches from the end. This is to raise the wire for cutting.

Wind on all the wire that the spool holds, then with clamps hold the wire tight about 6 or 7 inches from each end of the board. Now with a pair of tinner's snips cut the wire at the half-inch strip,

and nail the board to a table within reach. By using the wiring-board shown in the second illustration I can easily wire 60



frames an hour, and all will be tight. After placing the frame on the board, force the

wedge between the brace and the end-bar of the frame, springing the latter in. After the frame is wired and this wedge taken out the end-bar will spring back in place and tighten the wires.

Morgan, Ky.

[We use practically this plan for cutting the wires the proper length; but instead of using clamps we merely tie coarse strings around the wires, board and all.

An important advantage of this plan which Mr. Jordan does not mention is that the wires drawn from the board are much less likely to kink than if pulled directly from a spool.—Ed.]

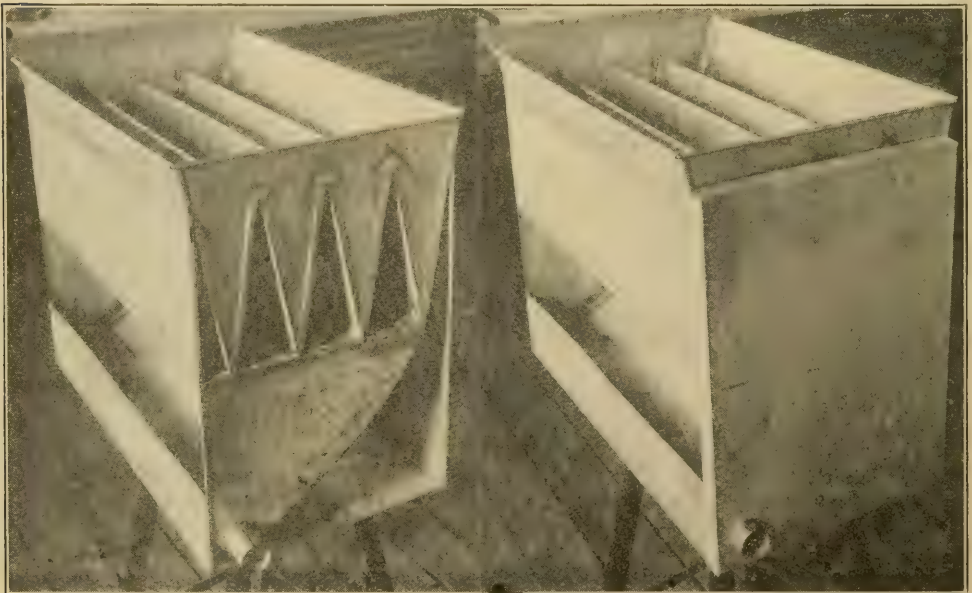
AS GLIMPSED THROUGH THE CAMERA: THE BARTLETT-MILLER CAPPING-MELTER

BY H. H. ROOT

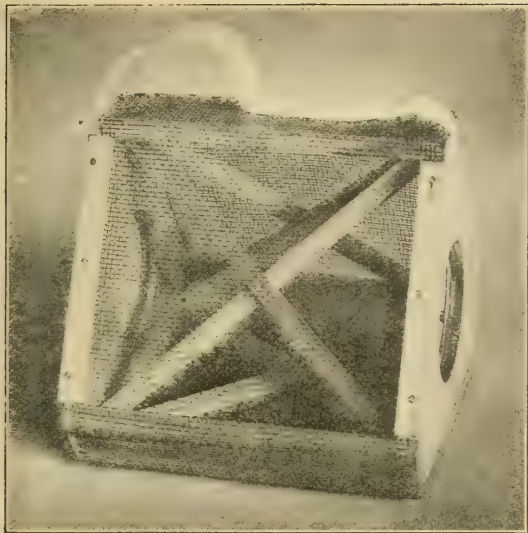
Since the publication of the article by H. Bartlett-Miller, page 164, Feb. 15, a number of beekeepers have written, asking for further particulars regarding the making of this capping-melter, because the sectional view shown was not entirely clear.

Believing that this particular form of melter has much to recommend it, we built one to test the coming season. The illustration shows two views of the melter. The first one was taken before the end was soldered on, in order to make plain the

construction of the inside part. The steam generated in the lower part rises and heats the curved false bottom, passes around the ends of this, and circulates thru the triangular tubes. The outer end, when soldered on as shown in the second illustration, confines the steam so that it circulates only thru the tubes. Both ends are exactly alike in this respect. There is no exit from the water or steam compartment except at the filler lip on the end opposite from the honey and wax outlet. In case the steam



Bartlett-Miller capping-melter described on page 164, Feb. 15. In the first view the end is not yet soldered on, so that the interior construction may show.



Half-pound cage for shipping bees. The triangular construction adds to the strength and insures abundant ventilation.

pressure becomes too great it can escape thru this opening.

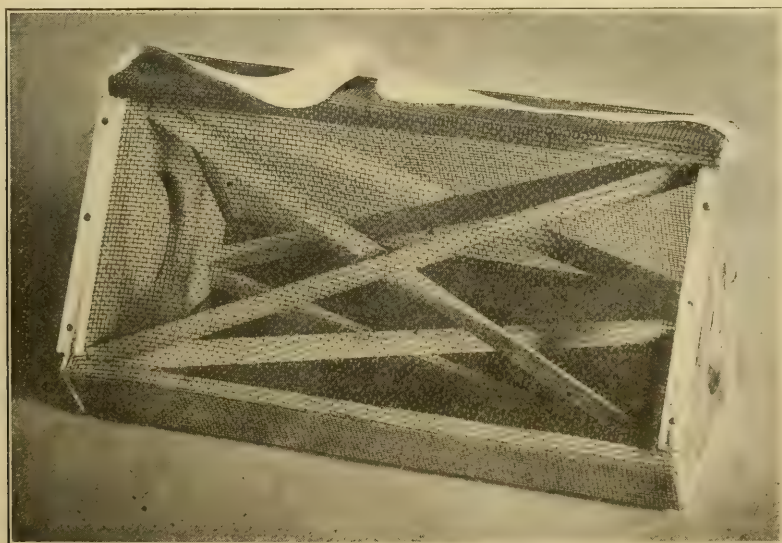
When the cappings fall into the melter they strike the nearly vertical sides of the steam-heated tubes, and begin to slide down immediately toward the narrow 5/16-inch spaces between the tubes at the bottom. By the time the honey drips down on to the false bottom beneath, the wax is melted, and the honey and wax both run out of the opening at the end of the gutter. The honey is not subject to the heat any longer

than is absolutely necessary, and there is no possible chance for it to dam up or be confined.

Mr. Miller, since the publication of his article, has been using a capping-melter on some rather strenuous work. On one occasion he reduced 267 pounds of cappings and a few combs of non-extractable honey in just thirty minutes.

In the melter which we constructed we reduced the height of the hopper over the tube to only 2 inches, as we knew that this would take care of the cappings under all ordinary circumstances. If two are uncapping, or if we wish to melt up a large amount of granulated honey, we shall build an extended hopper made of thin boards. This can be taken off out of the way when not needed.

At the present time there is one drawback to this design of capping-melter, and that is the question of material. Sheet copper is nearly three times its normal price; and that means that if copper were used the material alone would cost in the neighborhood of eight or nine dollars. It requires close to two days' time for labor in constructing. We finally decided on galvanized iron as the most practical material available. After considerable experimenting we succeeded in seaming the joints so that the solder would hold it securely. We do not think the plan of soldering the tube mentioned by Mr. Miller is practical when galvanized iron is used,



The one-pound cage.

for the alternate changes in temperature would be likely in time to cause a leak. With proper care, the galvanized metal ought to last a number of seasons.

A NEW STYLE OF COMBLESS PACKAGE FOR SHIPPING BEES.

Since our experiment with the Achord combless package as recorded on page 89, Nov. 1, we have been doing considerable further experimenting with a view of finding a more compact cage that could be more cheaply constructed than the one sent us by Mr. Achord and that would take a little less room as well. The cleats extending out beyond the sides of the cage are not especially liked by the express companies.

Our Mr. Arlie Pritchard has suggested the construction shown in the accompanying illustration. Notice that the ends of the cage are triangular, and that there is no vertical surface. It is impossible to crowd the cage so tightly to the wall as to shut off the ventilation, hence no projecting cleats are needed. This construction is light and strong, and it furnishes far more room for the bees than the old-style cages.

One extensive shipper to whom we sent one of the cages wrote that it looked like the best thing out; but he thought the cross-sticks should be arranged a little nearer the center to give more space between them and the wire cloth.

A BEGINNER'S EXPERIENCE IN MANITOBA

BY MRS. FLORENCE WESTGATE

During the winter of 1914, owing to poor stores and too much heat and smoke in the cellar, out of sixteen colonies put in I took out only two which were of any use.

Seeing bees advertised in pound packages I ordered a pound from the South just for an experiment. They came the first of May, in the very best condition, with only about one dozen dead bees. I put them on two drawn combs filled partly with sugar syrup. They were beautiful bees. The weather was very cold, so I covered them with quilts and stuffed a feather pillow in the open space at the side of the hive and left them alone, except to visit them and sit and watch them hustle. They were the greatest little workers—out first in the morning and in last at night.

I determined to have more of them, and wired for five more packages which arrived

May 26 in even better condition than the others—not a spoonful of dead bees. How proud I was of them!

I followed the directions as nearly as possible, giving them drawn combs of sugar syrup. I tried putting a tomato-can of syrup inverted, on a saucer in the open space at the side of the hive, and it must have worked all right from the way those little duffers worked and built up.

I shook one of my old colonies June 17, and gave frames of brood to the new ones. They had their hives full of brood and bees in the middle of July. On the 19th the first one cast a fine swarm, and from then on I had a swarm every day until all but one of the new colonies had swarmed.

The bees I received May 1 filled two supers of sections and one half-depth super of extracted. I got 20 cts. per section and



A good retreat from the summer's heat—in Manitoba.

about 30 lbs. of extracted, which I sold at 15 cts. a pound. I did not give these bees any brood either, as they were almost a month ahead of the other five.

I now have 16 good strong colonies and two not so strong if they winter successfully. From the remaining colonies I sold 193 sections and 196 pounds of extracted.

I am enclosing a picture of part of my

new colonies. I am standing by the hive, with my daughter and two young friends who had been helping me extract. My little apiary is on the north side of the lawn, with about 20 acres of natural shelter to the west, and with a hedge on the east. The bush is oak and wild fruit-trees—plum, cherry, and saskatoon.

Portage la Prairie, Manitoba.

WASHINGTON BEEKEEPERS' CONVENTION

BY H. T. SKINNER

The 22d annual convention of the Washington State Beekeepers' Association was held in the Commercial Club rooms at North Yakima, on February 9 and 10.

Weather conditions were unusually bad, and the attendance was not as large as expected; but those who braved the elements were well repaid, for the program was an excellent one.

The officers' reports showed the association to be in a healthy condition.

There were papers and addresses by some of the best-known beekeepers of the state on subjects of interest to beekeepers, one by Mr. Sauter, of College Place, Washington, on queen-rearing, being of particular interest. Mr. Sauter is the only large commercial queen-breeder in the state.

There was a paper by Professor Wilson, Entomologist of the University of Wisconsin, entitled "Better Queens, better Bees; better Bees, less Disease."

Professor Thornber, of the Washington State College, told of the college extension work.

On the evening of the 9th Professor Melander, Entomologist of the Washington State College, gave an illustrated lecture entitled "Ants, Bees, and Wasps," which was a revelation to many of those present.

Anson S. White, the only surviving one of the charter members of the association, read an interesting paper on the original membership and the early days.

The members were so well pleased in buying containers in carload lots in 1915 that they decided to order the same way this year, and may add some other articles to the list.

During the year four members have passed away, viz., L. R. Freeman, a charter member, and first secretary of the association; D. B. Greenwalt, at one time president; J. D. McIntosh, and Mrs. Pressey, all well and favorably known.

Ten new members were added during the year.

A committee was appointed to draft a foul-brood law, and also one to arrange for the purchase of containers for the coming year's product.

The officers elected for the ensuing year were: President, J. B. Ramage, North Yakima; vice presidents, C. W. Higgins, Wapato; E. Sauter, College Place; W. H. Tucker, Prosser; J. J. Peters, Arlington; secretary, H. T. Skinner, North Yakima; treasurer, Gus Sipp, Selah.

North Yakima, Wash.

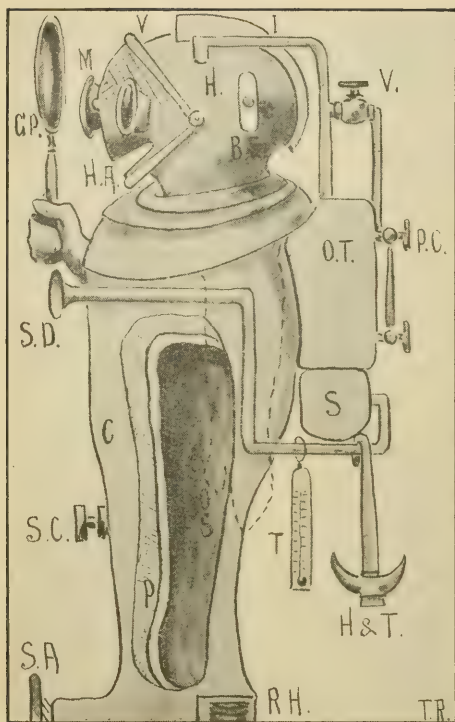
[The program of the Washington State Beekeepers' Association for this convention is a pleasing departure from the conventional type. It is a really creditable 24-page booklet giving the program, interesting facts regarding the association, lists of members, etc. Enough advertising was secured to offset the cost of the printing and probably more.—ED.]

A BEE-PROOF SUIT

BY "BEGINNER"

I have followed the discussion on the above subject in GLEANINGS, but all the suggestions developed weak points in practice. Here is one, however, that is *quite* bee-proof. H is the helmet of mild steel, built on the sealed-cover system, and fitted with a pair of magnifying rectilinear lenses. These enable the most timid student to make

accurate observations of the annoying bee oscillating flight in perfect security. The visor is of cold-drawn heavy-gauge steel wire. GP is a new-pattern glass periscope for viewing all cowardly rear attacks, and, incidentally, the important gauge glass on the oxygen-tank. S (beneath the OT) is the new type of cold-smoke battery. SD,



An improved bee-proof suit.

smoke discharge, shows the modern powerful sixteen-inch howitzer pattern. Hanging conveniently is the combined hive and

trenching tool. In case of onslaught by *overwhelming* numbers the apiarist may fearlessly dig himself in. Later the entrenchments should be lined with straw; and the bees wintered therein, thus turning apparent defeat into conclusive victory. On the front of the helmet is H.A., hot-air vent. This is very conveniently situated, as are also the aural apertures; but since the latter are covered with Porter bee-escapes the merest tyro will see that safety is the first consideration. (Unthinking critics have suggested this is to allow the "bee in the bonnet" to escape.) The smoke control is adjusted on that popular spot the knee, while shock-absorbers on the toes will minimize the difficulties should a hive be kicked by accident or diabolical intention. (Vide modern methods of handling hives instead of frames). R.H. is rubber heels to prevent hive-jar when walking about the apiary. The body of the suit is made of vulcanized sail canvas covering two inches of absorbent packing, preferably chaff; arctic moss is splendid, tho rather scarce. The whole is lined with the finest silk—not bee silk—for very few other clothes are worn with this dress. It will be noticed that the vital part of the head is reinforced with a metal jacket. In summer, water or ice may be inserted to keep everything comfortable. This point may be readily ascertained by the thermometer, T.

N. B.—Take care that the escape be fitted right side out.

SOME CURIOUS ADVENTURES IN QUEEN INTRODUCTION

BY J. H. TODD

"The Dixie Bee" asks Mr. Todd or some other advocate of the Simmins method of introduction to explain "the advantage of the darkness," and she mentions how queens were introduced by the fasting method in broad daylight.

The advantage of the darkness in introducing a queen is that the bees are quiet, there are no robbers on the prowl, and the bees are not expecting or looking for intruders. They are, therefore, less likely to be suspicious of the queen than they would be, perhaps, if the operation were done in the day with possibly several robbers following the apiarist from hive to hive, and making a dart for the combs whenever a mat is raised.

Of course, I dare say that, during a honey-flow, the plan will work well in daylight; but we can take many liberties in such happy times that would cause no end of trouble in a time of dearth.

WERE CELLS STARTED IN SPITE OF THE PRESENCE OF A VIRGIN?

Since my article, p. 581, July 15, two rather strange things have occurred. On September 17 a hive with a very prolific queen was so crowded with brood and honey that the bees started loafing. The queen had been raised the previous autumn, and was in her prime. Brood was placed in a super above the excluder; below were drawn combs, one frame of brood and queen, the intention being to divide on the Alexander plan.

I was unable to attend to this hive at the proper time, and on October 2 I found virgins hatching in the super. I destroyed as many as I could find. The queen was mismated, and I did not want her young as mothers. One or two, however, were at large. I found and killed one.

On October 3 I found my poor laying queen outside the hive, just dying. Why?

Had one of these newly hatched virgins managed to get into the lower box the day previous when I was looking for them in the super?

Well, that same day I moved the super to a new stand. Now please remember these facts, because it is *just possible* that each box might contain a virgin.

On October 15 I gave each of these two hives a frame of brood to see whether they had a virgin. Both commenced queen-cells, and the evening following I gave each a young laying queen by the Simmins method. Next morning, and the morning after, I examined the ground outside these hives. There were no dead queens, and, as usual, I said to myself, "Accepted."

On the fourth day after introducing I examined these hives to see if the queens were laying, and found both of them being balled. One looked as tho she had been persistently ill treated ever since being introduced, and in neither case were any eggs laid. There was no honey coming in, and both hives had been queenless a long time. Well, I caged both queens on the push-in-comb plan, and twelve hours later I liberated them (yesterday). One appeared to be accepted, but the other was attacked at once. So I shook all the bees on to a board in front of the hive after making them fill up well with honey, and let the queen go among them again; but they went at her, even on the board. So she was caged again; and if they attack her again, as they have no brood, I shall confine them all in a swarm-box and see if that modifies their views at all. Is it possible they had a virgin, and started queen-cells on the brood I gave them in spite of this?

I know some one will say, "That fellow ought to feed those bees, and then perhaps the queens would be accepted, as there is no honey coming in." So may I give another strange experience along this line?

A STRANGE MIX-UP.

I have two hives of blacks only, standing side by side. They have old queens. The willows had yielded well, and they both prepared to swarm; but before the event came off the willow flow ceased, and dearth and windy weather came on. In one hive the cells were not far advanced, and I destroyed them, raising the brood Alexander plan. The other hive had sealed cells, and they had destroyed a few, evidently on account of the failure of the willow-flow. However, the day was hot, so I watched them, and at 11 A. M. out they came, leaving the old queen with her clipped wing. I moved the brood, substituting a hive of foundation to which they returned. Then I

knew that foolish swarm would starve. So two days later I went to give them some frames of honey, and was just in time to see the tail end of the procession entering the adjoining black hive and the old queen hopping around on the alighting-board.

"Well," I thought, "you have made real fools of yourselves. Now do you think that neighboring hive will admit a half-starved crowd such as you are?" To my surprise, however, they did without any hesitation. This event just coincided with the commencement of my young queens laying in twelve baby nuclei (*i. e.*, 24 compartments). Now, of these 24, six queens were lost in windy weather, mainly thru getting into the wrong side of the box. This left 18 which got mated; and just as they were due to lay, six of them swarmed out, even tho they had plenty of food. One lot repented and came back with their queen, and she settled down to lay the same day. Two more united, and came back with one queen and settled on a bush. I put them into an empty box and the queen went ahead laying at once.

I found another of these six queens dead outside one of the big hives, and still another dead outside the black hive which accepted the starving swarm mentioned above. I could see the yellow bees of the nucleus mixed with the black bees, and so many of them that I thought they must be at least two little swarms joined together. Curiosity caused me to pull the hive apart and see if, by a stroke of luck, one of my yellow queens had supplanted the old black tho I thought such far too good to be true.

Well, it is the unexpected that happens, and there she was, a fine yellow queen at the head of affairs. How is that for a mix-up of bees and queens with no honey-flow? Bees were all in a bad temper, but there was no fighting. Why should this black hive let in all sorts of swarms and queens without trouble, while this other hive and its increase are so set against accepting a laying queen?

THE NUCLEI THAT SWARMED.

These baby nuclei that I referred to swarmed out just as the queen should have commenced laying, but before she actually did commence, so I could not shut her in. I don't think the bees went with her on her mating-flight, as they went in the forenoon earlier than the queens generally fly. I saw most of the queens had been mated 48 hours previous. Those which I recovered were laying queens. They had plenty of food but little or no brood. The day was hot, but the nuclei shaded. No queenless nuclei or those with virgins swarmed—only those where the queen was due to commence

laying just as the swarm left. I have in mind Mr. Miller's article on the subject, p. 363, May 1, and I am trying with those which swarmed, leaving them in possession of the whole box as he says—three combs, one feeder, and the empty space remote

from the entrance. Of course this just halves the mating capacity of the twin boxes. Again, the editor says in the A B C that these boxes do not do so well with one compartment empty.

Renwick, N. Z.

THE MIRACLE OF LIFE

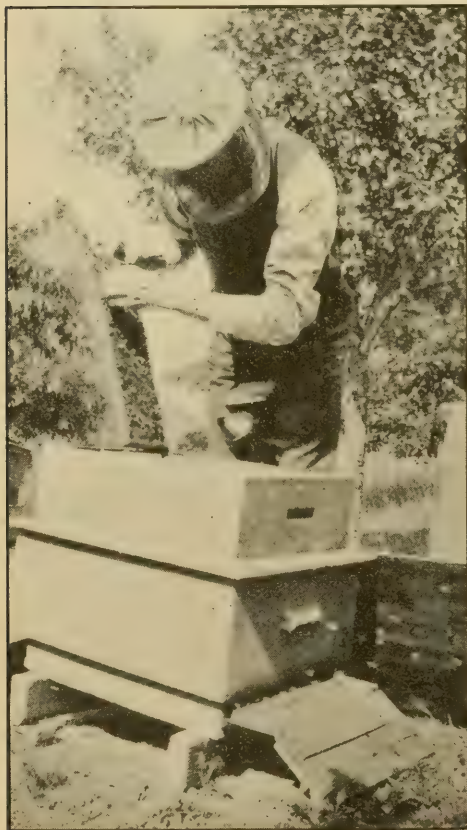
BY GRACE ALLEN

Within a beehive in the spring
There lies a very wondrous thing—
So frail an egg, it almost seems
A mote to float thru fairy dreams
In dews at night when silver light
Comes dancing down in streams.

Yet life is in this tiny thing,
And growth, and future eye and wing,
Sure instinct, and the love of light,
And treasured heritage of flight.
(O wing of bees! And eye that sees
With such a different sight!)

Wee egg, what miracle befell
To couch you in this fragile cell?
What miracle shall yet befall
When wingéd life thru waxen wall
Shall break its way some summer day
To follow life's far call?

How vain my questions, egg in cell!
You cannot understand nor tell.
I cannot understand nor know
How life can come and life can grow.
All wonder seems to end in dreams.
Perhaps we worship so.



These photos are interesting, mainly as showing the Alexander bee-hat in use; a method of opening a hive by which any rush of bees is directed away from the operator, a little smoke sufficing; the operator working barehanded, but having the smoker (held between the knees) handy for quick use; a hive-tool in the right hand; hive tilted slightly forward to shed water better; extended and sloped alighting-boards; simple hive-stand which has been previously described and illustrated in GLEANINGS. The hives are located among young fruit-trees, and bees are plainly shown on the wing before the hive.

B. KEEP, New Jersey.

Heads of Grain From Different Fields



The Backlot Buzzer

Our neighbor who moved out from the city says there was a hive of pesky blacks on the farm when he bought it, and they were living in an old cracker-box back of the wagon-shed. He read in the papers that bees were good for fruit bloom, but he's afraid to move them. He wants to know whether it would be all right to move his apple-trees.

Illinois State Civil-service Commission Inspector of Apiaries May 6, 1916.

On May 6, 1916, the Illinois State Civil Service Commission will hold competitive examinations at Anna, Carbondale, Charleston, Chicago, DeKalb, East St. Louis, Elgin, Jacksonsville, Kankakee, Lincoln, Macomb, Mt. Vernon, Normal, Olney, Peoria, Pontiac, Rockford, Springfield, Urbana, and Watertown for the position of Inspector of Apiaries.

This examination is open to men over 21 years of age who are residents of Illinois. The salary is \$4.00 a day and traveling expenses while working.

The duties of the position are defined by statute, and may be briefly described as involving the inspection of bee-farms thru-out the state in order to prevent the spread of foul brood and other contagious diseases found among bees. It is the duty of the inspector, when such foul brood or other contagious diseases are found, to serve notice on the bee-farm and to have such infected apiaries, hives, and bees destroyed or do it himself, making a report of pecuniary damage done to the owner. The position, therefore, demands a thoro knowledge of diseases

peculiar to bees and considerable experience in breeding and caring for them.

Successful applicants will not be employed continuously, but will be notified as occasion demands it, to inspect certain bee-farms in their neighborhood. Accordingly, liability to notification will be restricted to the six or seven warmer months of the year.

The examination will consist of the following parts weighted as indicated:

Training and experience, 4; special subjects, covering treatment of foul brood, the habits and general care of bees, 6.

The candidates must make a grade of 65 or more on special subjects.

Applications will be received at Springfield until 5 p. m., Saturday, April 29, 1916. Address requests for application blanks to the State Civil Service Commission at Springfield, Illinois, or at Room 904, 130 N. Fifth Ave., Chicago.

Persons receiving a copy of this notice are requested to bring it to the attention of those qualified.

This circular contains all the information which the Commission has to give out concerning the above examination.

A New Use for the Hot-water Bottle

The other day, the weather having turned mild, I was taking a walk thru the beeyard, and noticed before one of the hives an unusual number of dead bees—an almost sure indication that something was wrong—starving, I suspected. I hastily removed the packing and found the bees just quivering—quite past taking honey unless something was done for them. It suddenly occurred to me that the hot-water bottle would be the most convenient thing to apply. Returning to the house I filled the bottle, took it out, and placed it over the almost dead cluster, and drew the packing over it. The effect was magical. The gentle heat revived every bee that had any life in it, and they were soon filling themselves with honey from the card I had slipped in. The hot-water bottle warmed up the bees with no loss whatever; and a day or two later, when the sun was shining brightly, they were flying as freely here as at any of the other hives.

Denfield, Ont.

Ethel Robson.

100 Colonies from Nothing to Start with

I have 100 colonies, all in eight-frame hives, which I made myself. Five years ago my brother and I were pumping an oil-well; and so, having considerable extra time, we began catching wild bees. The result was a nice yard of 100 colonies, all hybrids, but workers.

I have never had a cell of foul brood so far, and I have never fed one pound of anything. The lateness of the tarweed bloom

accounts for that, as all colonies are heavy with stores now, Jan. 19.

I will extract before the main honey-flow starts, getting possibly 1200 or 1500 pounds of tarweed honey, which is almost a total loss, as there is no sale for it here.

I am a great admirer of the Dixie Bee, and wish it had more space.

On page 17, Jan. 1, appears an article by Frank C. Pellett, on the habits of skunks. If I had my bees in one yard and my chickens in another, and had to turn Mr. Skunk loose in one, I would put him in the beeyard. There are lots of skunks here, especially the small spotted variety, and I have seen them near my bees many times, and see their tracks in the wet sand; but I can't say that I ever lost any bees by them. But, on the other hand, in this country the skunk is a natural-born chicken-killer.

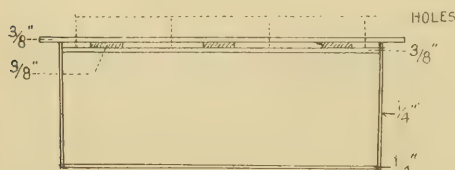
Rain! say, isn't it great? It's been raining for almost three weeks now, and the sage is beginning to leaf out.

Oreutt, Cal.

W. P. Worsham.

Frames with a Double Top-bar

Herewith is a sketch of the style of frame I have been using for the past ten years. It is far ahead of the solid top-bar, I think. Before I used them I used to put in sticks or a Hill device; but these were a poor substitute. I have frames that I used when I first adopted these, and they have never been filled up by the bees. They are very easily made.



I have found that laying a piece of burlap over frames and then a board right down on burlap tight will winter bees better than any cushions over bees. I have kept bees, or they have helped keep me, for about 30 years. I use large hives—nothing less than 15 to 24 L. frames, side by side. I had only one swarm from 40 last year. Large hives did it. I use two queens below, and let the bees all work together above. It's fun to see such colonies at work carrying in honey.

East Claridon, O.

E. C. Miller.

[The double top-bar as here illustrated was exploited some twenty years ago. They are all right, and we do not quite understand why they did not receive more recognition than they have. The claim was made at the time, that they would provide bee-passages so that the bees would go back and forth from one comb to the other during the winter. The claim was also made that they would eliminate to a great extent burr and brace combs, and that is true.

This is an instance of one of the good things that were introduced some years ago, but which dropped out of sight. About the time this double top-bar was suggested, the thick top-bar was also brought to the front. As this was a little better for eliminating brace-combs, it seems to have crowded the double top-bar into the background where it was forgotten.—Ed.]

Know the Men with Whom You are Dealing

On page 74, Jan. 15, L. E. Webb asks, "Are breeders of untested queens guilty of sending out a majority of their stock mated?"

The dishonest queen-breeders, if there are any, can positively answer this question, but they won't. The purchaser who has had the misfortune to get even 25 per cent of untested queens is not in position to say positively that he is being made the dumping-ground for hybrid queens; but his suspicion is aroused, to say the least. But what can be the opinion of one who receives eleven untested queens, and a mismatch in each case? It would seem that there is but one of two conclusions—namely, that the queen-breeder is dishonest or he is surrounded with black and hybrid bees.

In either case he should not be patronized. But why will one risk his money where there may be a doubt as to fair treatment when there are so many whose reputation is above question? I believe one should always buy his queens from the nearest reputable breeder, in order to insure quick and safe delivery. "Safety first."

I have been buying untested queens for many years, but from only two breeders—one in Ohio, the other in Kentucky, and have never had a mismatch yet. I had one drone-layer, which was made good at once. So it seems that the best advice to Mr. Webb's question would be, "Know the men with whom you are dealing."

Indianapolis, Ind.

J. F. Kight.

Some Bee-tree

We have had a very interesting time here the past week, as we stopped here and went bee-hunting. We found four trees on the railroad company's right of way, and proceeded to cut them; and I am frank to say that in 45 years of bee-raising I never saw the like. Two of the colonies had evidently been in the trees for some time, as they inhabited twenty feet of the main trunk of a tree, the hollow part being 18 inches in diameter. I never saw as many bees in one swarm in my life. There were bushels of them, nearly black, and the honey was the finest I have tasted in years. I have not weighed what we took out, but presume it will run about a thousand pounds, comb and all. To be sure, some of it is dark comb, but a large amount of it is new comb.

Kansas City, Mo.

A. J. Stanford.

A. I. Root

OUR HOMES

Editor

What then shall I do with Jesus, that is called Christ?—MAT. 27:22.

Thou art the Christ, the Son of the living God.—MAT. 16:16.

And whosoever liveth and believeth on me shall never die. Believest thou this?—JOHN 11:26.

While I write an evangelist by the name of Stough is stirring the city of Tampa by a series of sermons; and, as a result, hundreds are coming forward and accepting Christ as the "Son of the Living God."* From the Tampa *Morning Tribune*, March 24, I clip as follows:

Comparing some of the politicians of Hillsborough County to Pontius Pilate, Evangelist Stough preached a strong sermon on the words of Pontius Pilate, "What then shall I do with Jesus?"

As he neared the close of his sermon Dr. Stough said that every man left the tabernacle after having either made a decision for or against Christ.

"The question of this text is not that of a Christian, but of a non-Christian, and is asked of a non-Christian crowd. Today no question is more vital, no question is asked more than the one of this text. Gladstone was visited at one time by an American just at the time of Armenian atrocities. The Premier was walking with the American when the latter asked as to what was the greatest need of the day for England, and Gladstone, without any hesitancy whatever, replied, 'You know there is but one question, it is that of Christianity, and, when my nation becomes convinced that that question is right she will answer every other question before her.'

"He was right; and remember that he who was the greatest statesman of his time was so keen of perception that all questions were gathered up in the one and exclusive question of Christianity.

QUESTION WOULD SETTLE WAR.

"If the question what we shall do with Jesus were settled tonight the war in Europe would be settled instantan. The main issue in Tampa, in Hillsborough County, is what we are going to do with Jesus. While here I shall arraign the men who are responsible for having this city wide open, and having held open, the sluice gates of vice and corruption. I shall not hesitate to strike wrong in high or low places or wherever it exists; but the chief question after all is, what are we going to do with Jesus?

"I want all to understand that I am not here as a reformer by any means or as a political propagandist. There is a question that is far greater than the one of who is going to be the next mayor of Tampa or who will represent this district at Tallahassee or at Washington. Reduce all the issues to the last analysis if you will, and the question is, what is Tampa, what is Hillsborough County, going to do with Jesus, who is called the Christ? What are you citizens, what are you heads of families, what are you individuals going to do tonight with Jesus, who is called the Christ?

"Don't let the little politicians dust your eyes. I am not here, as they claim, as an agent of the Anti-saloon League or any party, altho I am interested in anything that will work for the betterment of the nation. I am an evangelist of the cross of Jesus Christ.

* We clip the following from the *Christian Herald*:

"Evangelist Henry W. Stough and party closed a six-weeks' campaign in Atlantic City early in February, and 1000 conversions are reported. The Stough party went from Atlantic City to Tampa, Fla.

LET OFFICIALS ANSWER.

"I want to ask the mayor of your city what he is going to do with Jesus, who is called Christ? I want to ask the sheriff, the chief of police, and every policeman and every candidate for office what he proposes to do with Jesus; and if he answers this one question correctly he will answer all the rest in the right manner.

"Jesus Christ is on trial these days. These are no common hours for Tampa. These are God's particular hours. The heart of God is concerned. This appeal for an answer to this question is made to the individual as well as to the community at large. No man can dodge or sidestep this most momentous question. Acceptance or rejection of God depends upon the answer to this question.

"Dr. Torrey, while preaching in the Moody church in Chicago, one Sunday morning, said that if the wickedest woman in Chicago were to come to Christ he would be ready and willing to accept her. Torrey little knew when he spoke these words that there was such a woman, or one of the lowest class, seated under the balcony in the church. She had not been within a church in years. She heard what the preacher said and said to herself, 'I wonder if he means me.' After the service she slipped up the aisle and found Christ while kneeling with the great preacher.

"There are people who pride themselves on the fact that they have been living decent and respectable lives. After the gospel of Christ has been preached 1900 years they still say that, since they live decent and respectable lives, it won't go so hard for them in the hereafter.

"That was spawned and spewed in hell; and if it were true that the living of a moral life would get a person into heaven, then Christ would have been an imposter and the church would be simply a teacher and a publisher of lies. No man ever gained heaven and eternal life without first answering this question and answering it right.

"Morality is not Christianity. Neither is Christianity morality alone. Morality is only one of the fruits of Christianity. God does not damn people because they are bad, nor does he save them because they are good. All of us have sinned and come short of the glory of God. If there is any damning done at all, man does it himself in not giving the right answer to this text.

ONLY WAY TO SECURE PEACE.

"Don't be deceived. You will never find peace until you come to the foot of Calvary's cross. It is a momentous question.

"I have the profoundest respect and pity for Pontius Pilate. He is one of the wonderful characters in the pages of this book. Did you ever study him? He is one of the keenest, clearest, and brainiest men of the crowd that stood against Jesus. He is a man who spoke little, but what he did say has come down to us thru the centuries.

"Oh what a chance Pilate had! If he only would have done so, his name might have come down thru the ages synonymous with those of Jesus. He could have championed his cause. Pilate had a wonderful chance and lost it. He knew of Jesus; and yet, if you never knew of Jesus before you came in this tabernacle tonight, I have said enough tonight to send you either to heaven or to hell.

"Pilate had a conscience that warned him three times, and you have a conscience. Then Pilate had a wife who warned him, and you have friends that have warned you and who have been praying for you.

"There are three things that kept Pilate from answering the question aright: He was a vacillator. He was a typical Hillsborough County politician.

Pilate wasn't so bad, but he had no backbone or convictions. Where the vertebrae should have been there was only gristle. Like the grain in the field, he swayed every direction. He was looking for the vote. He wanted prestige, the favor of the crowd. Do you know any like him about here? The town is full of them—side-steppers, men who lack conviction and courage, and are always apologetic, men who always train with the big crowd.

AFRAID OF PUBLIC OPINION.

"Pilate was afraid of his friends. He could not stand ridicule. How sorry I am for many people of Tampa, many of them church members, who are of this class. While this campaign is talked up and down the streets they are cravenly and cowardly, and can't stand the criticism, so they don't speak up. They apologize for the campaign, and side in. Next thing you know they lose an opportunity.

"Within the next ten days I hope to see the issues drawn closely, and you will be on one side or on the other. If you are a mere church member, Almighty God will put you on the side where you belong.

First, they knock me because I am the handiest thing to knock. Next they knock the tabernacle, and next the church, and then the question becomes deeper—it becomes one of righteousness or unrighteousness. Then it becomes one of enforcing or breaking of law, and before this campaign is much older it will be a line between Jesus Christ or the devil.

"Pilate tried to side-step, and he chased Jesus to Herod, but Herod drove him back. He could not get rid of the question, and neither can you.

"Pilate was afraid of his sins. He was crooked, and therefore a crook. He has lots of relations in Tampa. He had a record that he was ashamed of. There are men in this town who are opposing this campaign because they know that, if their record is shown up, state's prison is their desert.

"Tissort's famous painting shows Jesus and Pilate face to face, and underneath the painter has written, 'Christ before Pilate;' but he has painted better than he has written, for it really is *Pilate* before Christ."

A few days ago a visitor called who said his father took GLEANINGS years ago, when he was a boy, and A. I. Root's Home papers were his especial delight, etc.; yet this man, the father of a family, had never united with any band of Christian people. If I am right about it, he seemed to think, as above, that "living a decent and respectable life" was enough. I said, "Surely, my good friend, your sympathies and feelings are with Christian people and what they are trying to do to save the world." He replied something like this:

"Oh, yes! of course," etc.

I should have said (but I did not get around to it) in the language of our text, "What are you doing with Jesus? Do you accept him as Peter did, as the Son of the living God?"

My good friend, whose eyes are resting on these pages, how is it with you? Do you accept Christ as you know him, as the Son of God? Your answer settles the whole question. Will you not write and tell me you *do*, that there may be more "joy in heaven," as we read about in God's holy word?

When the world accepts Christ or even a *majority* of the world, war will end in an instant as the evangelist has said. I hardly need add that the one who makes this acceptance must stand up before the world and live in accordance with it; and I am glad to note that the thousands who are coming forward in answer to Billy Sunday's earnest appeals, and other evangelists like him, *are* living out their profession nobly, with *very few exceptions*. Remember the voice from heaven that proclaimed to a sinful world, "This is my beloved Son in whom I am well pleased."

FOR OF SUCH IS THE KINGDOM OF GOD.—
LUKE 18:16.

The following from the *Christian Herald* of March 15 is an excellent supplement to the Home paper of Feb. 1:

SHALL WE LET THESE BABIES DIE!

Judge Ben B. Lindsay recently addressed a meeting held at New York under the auspices of the Citizens Committee for Food Shipment, on the question of sending shipments of milk to save the lives of the starving babies of Germany. Judge Lindsay said:

"One of the most gripping scenes I ever witnessed, and one that I shall carry with me to my dying day, was the sight of a long line of mothers with tiny babies in their arms, waiting to be supplied with milk. I saw the splendid sanitary equipment and other arrangements for handling the milk-bottles and caring for the milk, but I saw no milk. The supply for the day had given out, and still there were hundreds of mothers left in the line who must pray for milk on the morrow, for milk to keep their babies alive. I saw the tear-stained faces of those mothers as they turned away, not knowing whether the little bit of life in their babies could be sustained until tomorrow.

"In many cities of 30,000 or 40,000 in Poland there is not a baby alive under three years, and in many places not a child under ten years, so terrible has been the demand for milk."

There seems to be plenty of other sorts of food in Germany; but the one thing that the babies cannot live without, the country is short of. Germany has never been a grazing country. Much of the food for its cows has been imported. Now these imports are cut off, and the babies are dying.

England and France say the United States must not allow the shipment of condensed milk to Germany to save the lives of these babies. What does the United States think about it?

One plan suggested by the committee is to arrange for shipments of milk to the Netherlands, to be reconsigned to Germany.

The *Christian Herald* would stop, if we could, the air raids on England, in which babies have been killed. We would stop, if we could, the submarine warfare in which children have perished. But the fact that these dozens of babies have been slain is no reason why America should acquiesce in the killing of millions of babies in Germany by taking away the milk they cannot live without.

You know the cry of the hungry child. You hear your own baby cry in the night. You know the sweet little sounds of content, as it finds the milk nature demands for it. Can you hear these other cries that do not cease, night or day? Can you see the little forms wasting, the cries growing fainter, the little eyes, their brightness long since gone, being drained at length of their tears, growing more

and more dim, and closing at last to open no more! Not dozens, nor scores, nor hundreds, but many thousands dying like this!

We send shells to kill men. May we not send milk to save babies!

AEROPLANE DEVELOPMENT.

The war has revolutionized the aeroplane. We no longer hear about the dangers of mere flying; mechanical ingenuity has apparently overcome them. In almost any kind of weather except the severest gales, the fliers now sweep along at over a hundred miles an hour, under 150 horsepower. Waldemar Kampffert, in a recent article, writes that there are over 5000 planes of various models in use in the different armies, and that the perils from armed aerial enemies and from aeroplane guns on the field below are such that the average flying life of a plane is not longer than two weeks! Very few of the machines used at the beginning of the war are now in service, and to repair the waste it may be necessary to build 50,000 aeroplanes a year while the war lasts. There have been no radical departures from the early models of Orville and Wilbur Wright, altho there are many varied arrangements of the wings. Types may vary, but the original principle persists. No longer is the aeroplane the toy of sport and adventure. It has become a surprisingly dependable machine.

THE "SUNSHINE CURE," GOD'S MEDICINE.

Mr. A. I. Root:—Do you remember the sick boy who came to Bradentown with his mother in the spring of 1914? Well, this is he, and I am not dead yet.

I read in your Home talks about the baby that is allowed to enjoy the sun every day (p. 1001, Dec. 15), and I am going to tell you about my experience with the sun cure.

The doctor advocated rich food, such as cream, raw eggs, buttermilk, etc., which, of course, I found agreeable enough. I sleep on the porch winter and summer, and never expect to quit. But the most remarkable part of the treatment, and the part that brought me up like a soap-bubble, was the sun cure. Fortunately I live on a farm with no near neighbors, so I had no hindrance from that quarter. The treatment consists of going as nearly naked as possible in the hot sun. From May 1 to Sept. 1, 1914, we had practically no rain in this section of the country. The sun beat down with a fury. Crops were ruined, and it looked like bankruptcy to most of the farmers, but it was just the thing for me. I made use of it too. That was one summer I did not "sit in the shade." I was in the broiling sun all summer with nothing on except a narrow pair of bathing-trunks. Of course I had to get myself accustomed to the sun before I could stand the continual glare all day. That is a tedious job, and must be gone about with caution. One would think that the heat of the sun would be very disagreeable; but I enjoyed it. It puts a snap and vigor into the body, and at night I slept like a baby, which was indeed a treat to me after the many nights I had suffered from insomnia and cold sweats. I am perfectly well now; but I wore my "sunning" clothes last summer, and intend to again this summer, just for the life it puts into me. LYMAN L. DULEY.

Smithland, Ky., Feb. 17.

In the above, nothing is said about exercise while out in the sun; but I take it our friend was all the time busy at work of some kind. Many times when I felt "too sick to do anything," by getting out in the sun, in scant attire, with my light hoe, I would soon be feeling fine.

The following from the *Plain Dealer* comes in nicely right here:

LIGHT THE BEST DISEASE CURE; EXPERT SAYS IT'S SUPERIOR TO WATER BAG OR POULTICE.

Prof. E. C. Titus, in an address, stated that light is a much better cure for disease than hot-water bag or poultice. He says that when rays of light fall on the skin some are arrested by one layer of skin and some by another, while some are not stopped until they have penetrated the subcutaneous tissues.

When the light is thus arrested it produces radiant heat, which has a higher penetrating power than convection heat, such as generated by poultices, etc. Radiant heat penetrates two inches or more, while convection heat is excited principally on the surface.

MEDINA 45 YEARS AGO, OR 3 YEARS BEFORE GLEANINGS WAS STARTED.

My attention was recently called to a clipping from the *Medina Gazette* of July 8, 1870. This was about five years after I bought my twenty-dollar queen, and about three years before GLEANINGS was started. Below is the clipping:

The statement made by A. I. Root in his communication on the fourth page of the *Gazette*, of the amount of honey made by his bees within the past two months, seems incredible; but it is a solid fact. Five thousand pounds in sixty days by fifty hives! Has it ever been beaten in the United States?

After I got the Italian queen from Mr. Langstroth I began studying bees and bee culture almost day and night, in my desire to find out everything known about bees on the face of the earth. I commenced hunting up bee-books and subscribing for farm papers that contained articles on bee culture. The above report of 100 lbs. per colony for an apiary of 50 colonies was at that time considered a feat; but when the news became spread of what was possible with bee culture, reports came thick and fast from Florida, California, New York, Michigan, and all over our land. If I recall correctly, the largest number of pounds per colony from a fair-sized apiary was produced in the vicinity of New Smyrna, Fla. Perhaps some of the veterans can give me the figures. So far as I can recall, an apiary of somewhere toward 100 colonies made an average of between 200 and 300 lbs. per colony. This was just before the disastrous freeze of 1895.

"CHURNLESS BUTTER;" HOW THEY MAKE IT IN CHINA.

It might interest A. I. Root to know how we make churnless butter here. Not being able to get more than four to six large bottles from a cow per day we have very little to spare for butter. After going through the process of getting the cream to the top we put it into a wide-mouthed bottle, say Mason jar; and after a few minutes of jerky shaking, which slops the cream against the side of the bottle, we have a nice solid piece of butter. A steady shake is not so good. It wants to hit the glass sharply. J. F. MOORE.

Shau Tai Kuran, China.

WATER-WITCHING AND THE DIVINING-ROD.

From away off in New Zealand, at the close of a kind letter, we find the following:

I enclose an article on water-divining to convince A. I. R. that his sweeping statement recently made is not *always* correct. I know personally the Church of England parson referred to.

H. BARTLETT-MILLER.

Kihikihi, N. Z., Sept. 13.

Our friend incloses three pages of an article in the *New Zealand Farmer*. This article gives several illustrations and over two large pages of reading-matter. The man who has acquired a widespread reputation, as I take it, for his skill in finding water, is pictured; and as he is a reverend gentleman there is no question but that he is honest and sincere. If he studies his Bible, however, he will probably learn that "God is no respecter of persons," and he should also be aware that *science* is no respecter of persons. In the scientific world, what one man has discovered and learned in the way of controlling the forces of nature, other men can be taught, and I believe our most scientific and learned people recognize this. Yet he writes:

My theory is this: Flowing water generates a force which is at present unknown. This force, which is generated by internal friction, radiates upward, widening out, fanlike.

Electricity, wireless telegraphy, and all these wonderful things, work with everybody alike. I quote from the Rev. Mr. Mason as follows:

"I have tried hundreds of people and found that only three per cent have the power with the rod—but, as I have said, the rod is not reliable."

I quote again:

"I can quite understand people scoffing at such an idea as the divining-rod," said Mr. Mason, "and I can the more easily excuse it because the rod is not accurate in divination. With me, if I take the rod across a paddock it may move very vigorously; but in perhaps 25 per cent of the places where the rod responds so freely not a trace of water may be found upon sinking. With such a percentage of failures as that, people naturally say that the use of the rod is no good. In those cases I do not know what causes the rod to move; but the fact remains that it does. As I have said, I do not use the rod now, but simply move along with my arms in the position I have described."

"And do you think it possible for you to be mistaken now?" asked the writer.

Mr. Mason turned the question over in his mind. "No," he said, with quiet deliberation, "I really don't think so. Out of about 500 times in which I have located water, on only three occasions were the boring efforts unsuccessful. And even in those cases I feel perfectly convinced that if they had gone deep enough the water would have been got."

First he admits that only about three per cent of people generally can get any result at all with a divining-rod. Then, again, as you will notice in the above, he makes the

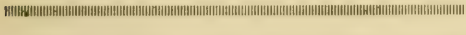
astounding admission that, even in his hands, the failures are about 25 per cent. I am very glad that he has made that acknowledgment; and I am glad, too, that he has thrown away the senseless stick or branch of a tree. He gets the impulse from his hands alone. I think he has helped the whole wide world, perhaps, to get along a *little* out of this old-fashioned superstition. In his concluding sentence quoted above he thinks the few failures would have been successes had they gone *deep* enough. But is it not probable that we might get water almost anywhere, sooner or later, if we only go "deep enough"? You see the explanation of this whole thing is like buying medicine at a drugstore. You take the medicine, and you get better. How can anybody tell if he would not get better just the same without it? Now for the divining-rod:

The water-witch tells you where to dig, and you find water. Would you not have found water, even if you had not employed him to locate it? Of course, one who has given the matter much study can judge pretty well by the growth of the trees, if there are any trees, or vegetation smaller than trees, such as weeds and grass. Our good friend owns up that it is not done through electricity or any other known force in nature. He gives it as his opinion that the water (perhaps a hundred feet or more below the surface) will manifest itself to the water-witch by some new force at present unknown and unrecognized by science. These old superstitions, like the moon's influence on animals and vegetation, predicting what the weather will be in certain localities months ahead, etc., die hard.

We clip the following from the *Scientific American*:

G. E. S. asks: I have heard of a method of finding a spring of water. Take a limb of a plum-tree which has a crotch in it. Take the two prongs of the crotch in the hands and hold the limb horizontally. Walk along, and when you walk over a spring of water the stick will be attracted to the ground. Please let me know through your valuable paper what condition of the wood (dry or green) gives best results. What size of limb should be used? Can any other kind of wood be used? To what depth can a spring be detected? Is this method successful when the ground is covered with snow? What causes the branch to dip? One person told me that, when he heard of it, the branch was attracted so that it broke. *Ans.*—We must say that we do not know anything about the finding of water by means of a crotch stick, nor do we believe it can be done. As a boy we lived in the country, where wells were depended upon for water, and we saw not a few men use the witch-hazel stick. It was said then that the stick must be of witch hazel. You say it should be plum. One is doubtless as good as the other. We have seen many failures with the sticks, and have known men to dig deep where the stick had turned down vigorously,

without any water being found. Sometimes water was found; but if there is a divining-rod of any value, water should always be found when it indicates water with any force. We cannot be of any help to you in explaining the divining-rod. The rods used were usually green, freshly cut.



SELLING HONEY; EDUCATING THE PEOPLE; SOMETHING ABOUT FETERITA.

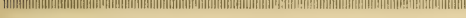
In GLEANINGS for Aug. 15 I see an account of successful honey peddling. I am glad some one has been successful. As honey brings only 4½ cents a pound for the best grade, we thought we would try selling it from house to house. We fixed up an outfit and started out. We certainly learned some lessons. We found that 99 out of 100 families right here in the up-to-date little city of Riverside, never taste honey. They hardly know what it is.

We stopped at one home, and my husband got out and took a quart jar of fine orange honey with him. He asked the ladies on the lawn if they would like some orange honey, and then went on to explain that we had also some buckwheat honey as well as orange comb honey and buckwheat comb honey. One woman looked up and said, "Have you any *bee* honey?"

My husband gravely informed her that it was all *bee* honey; and even then she didn't buy any.

The trouble with the honey business is that people are not educated on the subject. They think it strange that I let my little boy eat all he wants of it, and that it never makes him sick. He used to cry for candy every day until I let him have his fill of honey. He scarcely ever asks for candy now.

When the new shortening, "crisco," was put on the market, no one knew much about it. Now it is in nearly every house. How was it accomplished? Answer—advertising. The manufacturers knew they had a good article, but they didn't wait for it to sell itself in the face of keen competition. They didn't set it back in the corner of a grocery and wait to see what would happen. No; they started out to educate the people as to the peculiar merits of this particular article. They gave valuable recipes in the advertisements, telling how to use this fine new shortening. Now, in the short space of three years, the people have been educated on this subject. Why can't the same thing be done with honey?



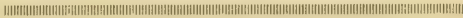
Karo is advertised on every corner, for every purpose the manufacturers can possibly invent. Why can't the same be done with honey?

My father, W. E. Little, has been a close reader of GLEANINGS for 20 years. I read it, too. I am much interested in what Mr. Root writes about feterita. Milo maize grows well here; but the birds will harvest a five-acre piece with ease with no charge for labor. How do they like feterita?

Riverside, Cal., Aug. 29. MRS. MAUDE THOMAS.

My good friend, I guess you are pretty nearly right about educating the people; and our company are now spending thousands of dollars just to let people know what honey is *good for*.

In regard to feterita, I think you have struck one of the main troubles—it is so handy for the birds. The seed does not come in a husk like corn and wheat. It just stands right out in plain sight, ready to be appropriated. We have had that trouble in Florida already to some extent. If we do not cut it and give it to the chickens just as soon as it is fit to eat, the birds are after it.



ALLEGHENY CO., PA., FOR SUFFRAGE.

We clip as follows from the *Union Signal*:

Thirty-one of the sixty-seven counties of Pennsylvania voted "yes" for woman suffrage! Chief among these was Allegheny County (with the city of Pittsburgh and its population of over half a million)—a county exceeded in population only by California among the suffrage states, and now facetiously called "the state of Allegheny." Allegheny County enjoys the distinction of being the first county of a million or more population to give a majority for suffrage. Two of the big anthracite counties, Luzerne and Lackawanna, including the cities of Wilkes-Barre and Scranton, were carried for suffrage.

HIGH-PRESSURE GARDENING

SWEET CLOVER; SEVEN BUSHELS OF SEED SECURED FROM THE ROADSIDE.

Sweet clover is taking a large place in the cropping of the little land I have to farm.

Last spring I sowed about twenty acres. Some of it has done well, and other parts not so well. This fall I am sowing eleven or twelve acres. About two acres were sown some ten days ago, and it is coming up nicely, as a rain came on while we were seeding the ground. On Monday of this week we finished sowing the clover, and then made a test of some four acres of the Grimm alfalfa. A good rain has just come, one day after seeding, and the prospect seems good for a fine start this fall.

Many people, our agricultural-college people included, claim that it will winter-kill. However, I am going to make the experiment, and know for myself. Do you know whether successful fall seeding is possible?

This fall I cut about an acre of roadside sweet clover, and secured seven bushels of seed from the same, which I count a very good yield.

Emporia, Kan., Sept. 15. CHAS. A. BOYLE.

In regard to sowing sweet clover in the fall, we sometimes have succeeded, and then we have failed. It depends a good deal on locality and on the amount of rain in order to have the young plants get root enough to avoid being thrown out by the frosts.

HANDLING SWEET-CLOVER SEED.

The following, from Chas. B. Wing, which we clip from the *Rural New-Yorker*, will, I am sure, be read with much interest by our readers.

There is no secret at all about the proper method for handling sweet clover for seed. I let mine get pretty ripe—ripe enough so that about three-fourths of the seed-pods have turned somewhat brown. Then I use a self-rake for harvesting, and I harvest only when wet with rain or dew. If it is a dry time this means getting up about two o'clock in the morn-

ing, harvesting until half an hour after sunrise, and then quitting. Handled in this way there need not be any loss from shattering, or at least not enough to amount to anything. If you have a very large acreage it would pay you to rig up some form of automobile lamp, and to cut all night.

I drop the bunches off just moderate sized, and do not touch them at all until just before time to thrash. I like to have at least one shower on them before thrashing, and count on the plants lying from three to six weeks before attempting to hull. The day before hulling, if the bunches seem tough underneath, we get out before daybreak and just tip them over, being careful while doing so not to jar, thereby preventing shattering.

This seed must be handled with extreme care from beginning to end, or else it will all be wasted. When ready to thrash I use tight-bottomed wagonbeds or sleds, and usually spread a canvas over these beds. We load on just what will ride comfortably, without having a man on the load at all, simply piling up what we can from the ground without any loading or tramping, and we hull with a clover-huller.

SWEET CLOVER AND MILK.

It is reported that the plant will sometimes taint cows' milk. It may be that it will; but I have fed this crop for several years, and am as particular about the milk as I very well could be, and have never as yet noticed any such result.

Ohio.

CHARLES B. WING.

OUR FLORIDA ALLIGATORS; A GLIMPSE OF THE "VARMINT."

The pictures below are from a "gator" that our good friend A. E. Ault and his boys captured near his place. On one occasion when the animal had sunk his teeth in a heavy stick Mr. Ault had in his hands, he commenced to roll over so rapidly the stick was either broken or twisted out of Mr. Ault's hands; and this reminds me that years ago Mr. Irving Keck told me of a couple of darkies who planned to capture a 'gator almost as big as a horse. They threw a rope over his head, and for safety (?) one of them tied the other end about his waist. As soon as the great reptile saw he was caught he commenced, like this one, to roll

over and over toward the lake. Had it not been for a sharp knife in the hands of his comrade the captor would soon have been drowned in the lake, and this is probably one of their regular "stunts" when in trouble.

"GATHER UP THE FRAGMENTS, THAT NOTHING BE LOST."

As there may be other localities like Florida, we give place to the below, clipped from the Bradentown *Evening Journal*:

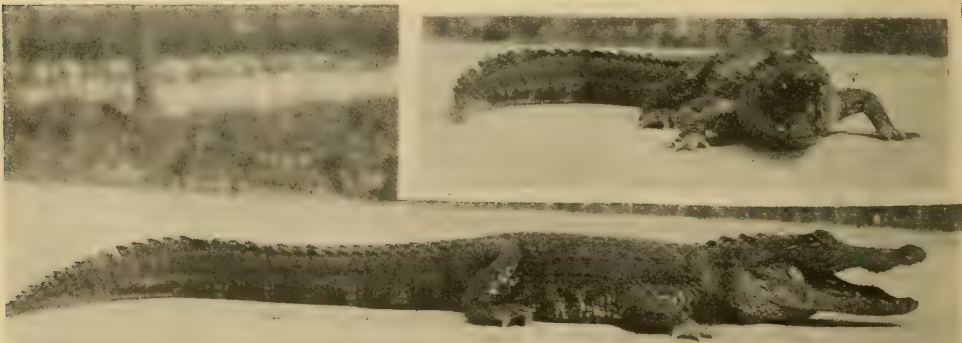
SAVE THE WASTE PAPERS.

For the past seven or eight years that we have been spending our winters in Bradentown, it has pained me to see waste papers, magazines, paper boxes, etc., burned up as if they were of no value, while in the North every scrap of paper and straw-board is bought up and worked over by the paper-mills. Altho I have been unable to find a market down here, I have been saving up our papers until Mrs. Root declares I shall have to build a barn to hold them, but finally relief is in sight. See the following item, just clipped from the *Cleveland Plain Dealer*:

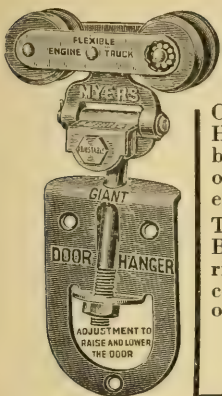
"Shortage of paper stock in the United States was discussed at a conference today (March 18) between Secretary Redfield and Charles A. Holder of the foreign trade adviser's office. France's embargo on the export of rags has caused many American manufacturers to fear that they may have to curtail production of their mills.

"The Department of Commerce recently appealed to housewives to save old papers and rags. Today the department began sending out 1,000,000 circulars to be posted in postoffices and elsewhere thruout the country, urging that papers and rags be saved. The commerce department promises to put those who save papers and rags in touch with manufacturers. Chambers of Commerce and trade associations have been asked to cooperate."

In Ohio the W. C. T. U. has for some time been gathering waste books and papers, and shipping them to the paper-mills, and some time ago I was told a similar movement was on foot in Florida. When I first came here I was also told there was no market for empty grain-sacks; but I kept on saving them up, and just recently I received several dollars for them from the Tampa Bay Company; but they said they then knew of no market for books and papers. "Waste not, want not." A. I. ROOT.



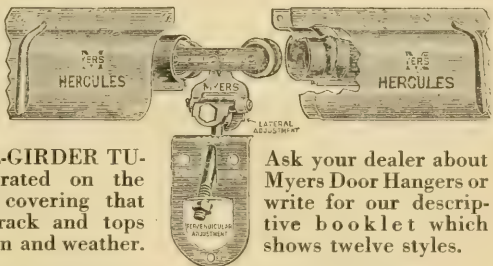
The animal stretched out on the smooth stone road in front of Mr. Ault's house.



MYERS Giant and Stayon DOOR-HANGERS

It is a satisfaction to have MYERS EASY-OPERATING DOOR-HANGERS on your barn, garage, and similar outbuildings, for they end all door troubles.

The HERCULES STEEL-GIRDER TUBULAR TRACK, illustrated on the right, has a protective covering that completely shields the track and tops of the doors from the rain and weather.



Ask your dealer about Myers Door Hangers or write for our descriptive booklet which shows twelve styles.

F. E. MYERS & BRO., 351 Orange Street, ASHLAND, OHIO
Ashland Pump and Hay Tool Works

Planet Jr. Wheel Hoe

gets bigger crops with half the work.

This No. 16 Planet Jr Single Wheel Hoe, Cultivator, Rake and Plow is the highest type of single wheel hoe made. Light and durable—can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Strong indestructible steel frame. High, easy-running steel wheel. Costs little, and lasts a lifetime. 14 other styles of wheel hoes—various prices.

New 72-page Catalog (184 illustrations) free!
Describes over 70 tools, including 12 entirely new ones, and improvements to our Horse Hoes, Harrows, Orchard- and Beet-Cultivators, Seeders and Wheel Hoes. *Write today!*

S. L. Allen & Co Box 11065 Philadelphia
If you are a farmer, trucker, orchardist, or suburbanite with a kitchen-garden, there is a Planet Jr made for your special need. You can't afford to work without a Planet Jr.

No. 16

NEW KEROSENE LIGHT

BEATS Electric or Gasoline
SEND NO MONEY CHARGES PREPAID

We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it **Burns 50 Hours on One Gallon** common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. It's **GUARANTEED**.

Men Make \$50 to \$300 Per Month with Rigs or Autos
delivering the ALADDIN on our easy trial plan. No previous experience necessary: Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 37 lamps out of 91 calls." Thousands who are coining money endorse the Aladdin just as strongly. **NO MONEY REQUIRED.** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. **Sample sent for 10 DAYS' FREE TRIAL.** We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp **FREE** for showing it to a few neighbors and sending in their orders. Write quick for **10 DAY ABSOLUTELY FREE TRIAL**. Address nearest office.

MANTLE LAMP COMPANY 302 Aladdin Bldg. CHICAGO; NEW YORK CITY; PORTLAND, ORE. MONTREAL or WINNIPEG, CANADA

Won GOLD MEDAL at World's Exposition San Francisco

Lights Entire Room Largest Kerosene (Coal Oil) Mantle Lamp House in the World

BEE-LINE QUEENS

Three-banded and Golden Italians from Caraway's Prize Stock. I secured the best stock obtainable; long lived, unexcelled as honey-gatherers, and very gentle. No foul brood nor diseases. Safe arrival and satisfaction guaranteed on all queens in the United States and Canada. State Inspector's Health Certificate with each shipment.

ITALIAN QUEENS				Nov. 10 to May 10				UNTESTED QUEENS BY THE 100:			
	1	6	12		1	6	12	April		\$75.00	
Untested	\$1.00	\$ 5.50	\$10.00					May		70.00	
Tested	1.25	6.50	12.00					June to November		65.00	
Select Tested	2.00	10.00	18.00					Breeders, fair, each, \$5			Extra Select, each, \$10
Pound Packages of Bees					1	6	12	25		50	100
1-lb. packages		\$1.50	\$ 8.50	\$16.00		\$33.00	\$ 65.00	\$127.50			
2-lb. packages		2.50	15.00	29.50		58.50	116.00	230.00			

Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.

B. M. CARAWAY, MATHIS, TEXAS

Dr. Miller's Strain of Italians

We have made arrangements with Dr. C. C. Miller to furnish us breeders, and therefore offer you the finest queens reared from the best stock on earth, as Dr. Miller holds the world's record for an apiary of more than 70 colonies having averaged 266 sections weighing 244 pounds. These are not queens bred from a mother that has produced one good yield, but it has been bred in them for generations until their honey-gathering is a fixed quality. In GLEANINGS, p. 788, Editor Root says, "Those queens (DR. MILLER'S) ought to be worth \$10 to \$25 each."

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get C. C. Miller, Marengo, Ill., March 1, 1916.

Virgins, 50 cts.; untested, \$1.50; tested, June, \$2.50. Breeders, August \$5 to \$10. Bees, our strain, 1 lb., \$1.50; 2 lbs., \$2.50; nuclei, 1-frame, \$1.25; 2-frame, \$2.25; 3-frame, \$3.25; 8-frame, colony, \$6.00; 10-frame colony, \$7.00. Prices do not include queens. Queens, our strain, Untested, 75 cts.; Tested, \$1.25; Select Tested, \$1.75. Satisfaction guaranteed as well as safe arrival. 200 colonies in 10-frame hives at \$6 each. Orders filled in rotation; deliveries will be made as promptly as possible after about April 15. One thousand mating nuclei.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

Archdekin's

Fine Italian Queens---3-banded

Prolific, Hardy, Gentle. They are Persistent, Profitable, Producers. None better.

Prices	Before July 1			After July 1		
	1	6	12	1	6	12
Untested	1.00	\$5.00	\$9.00	.75	\$4.00	\$7.00
Tested	1.50	8.00	15.00	1.00	5.50	10.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-frame nuclei	2.50	14.00	26.00	2.25	12.00	22.00
1-lb. pack. bees	1.50	13.00	25.00	1.25	7.00	13.00
2-lb. pack. bees	2.50	14.50	28.00			

Above prices of nuclei and "packages do not include queen. Add price of queen wanted. Satisfaction and safe arrival guaranteed. Absolutely no disease in this country. Get your order in early, and secure prompt delivery. Orders booked if half of amount accompanies order. Queens ready April 15. Nuclei and packages May 1.

J. F. ARCHDEKIN, Bordlonville, Louisiana

Talking Queens

Laws' queens speak for themselves, as "actions speak louder than words," while pleased customers everywhere have been boosting Laws queens many years.

Twenty-seven years' continuous advertising in this journal as queen-breeder, with continuous careful breeding from the very best Italians, places Laws queens and Laws methods far above the average.

If quick service and reliable dealings count with you, place your orders with me. My capacity is from five to six thousand queens in the next five months. Five hundred young laying queens ready now April 3, and many more before this reaches your eyes.

Prices: Tested, each, \$1; 12 for \$10; 100 for \$80. Untested, 90 cts.; 12 for \$9; 100 for \$70. Breeding queens, extra select, \$5 to \$10.

There is not a known case of bee disease in this or adjoining counties.

W. H. Laws, Beeville, Texas

Inspector for Bee County

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, \$1.00; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.



KANT-KLOG SPRAYER

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted. Rochester Spray Pump Co. 207 Broadway Rochester, N. Y.

Three-band Italian Queens

They are bred from imported mothers. They are the best for honey-producing purpose; very gentle, and not inclined to swarm. If you buy once you will buy always.

GUARANTEE that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.

All orders filled at once.

PRICES --- April 1 to July 1

Untested	one, \$0.75; six, \$4.25; doz., \$8.00
Select Untested	.90 5.00 9.00
Tested	1.25 7.00 13.00
Select tested	2.00 11.00 20.00

L. L. Forehand, Fort Deposit, Ala.



ITALIAN QUEENS THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street

Italian Queens --- Three-banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$2.00 each; \$20.00 per dozen. Breeding queens, \$5.00 each. Special prices on large orders. Our customers must be pleased. Safe arrival guaranteed. Send check with orders to

J. W. Taylor & Son, Beeville, Bee Co., Texas
Prices on nuclei on request.

Italian Queens

with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

Candy for WINTER STORES

Why not be sure your bees have enough for winter by giving each colony one or two plates of candy? We have it in large paper plates weighing about two pounds, enough to last a colony three or four weeks. Can be sent by post. Write for prices, also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

LOS ANGELES HONEY CO.
633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

Bees for Quick Sale!

Complete Bee Business

Four yards; best location in Snake River Valley. Greatest locations for honey in Idaho, producing absolutely the finest honey of such quality that one buyer wanted six to eight carloads. . . . Will require at least half cash.

"Bees," Care Gleanings 2275

Booking Now. . Mullin's Unrivald Italian Queens

Gentle and Prolific

May 1 to July 1 — Untested, \$1; dozen, \$9. After June 1 — Three-frame nuclei with untested queen, \$2.75. Satisfaction guaranteed.

O. S. Mullin, Holton, Kansas

Queens and Bees

Three-banded Italians.
Bred for honey and gentleness.

	1	6	12
Untested	\$.75	\$4.25	\$ 8.00
Select Untested . . .	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00

Bees in 1-lb packages, \$1.25, without queen. If wanted with queen, add price. Perfect satisfaction and safe delivery guaranteed.

N. Forehand, Fort Deposit, Ala.

I furnish a full colony of Italian bees in a complete new 8-frame Dovetailed hive for \$10.50; an S-frame chaff hive, \$12.50; a 10 frame chaff hive, \$14.00. This price includes a tested Italian queen. Catalog of bees and supplies free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apis 'ees, Glen Cove, L. I.

I am Anxious to Serve You

L. W. Crovatt, ^{Box} 134 Savannah, Ga.

Root's Goods Exclusively

Warehouse, River and Abercorn Streets
1916 Catalog sent on request

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

Where are You Located?

IN OHIO?—Then your orders will naturally gravitate to Zanesville, the Bee-supply Capital of the state.
IN WEST VIRGINIA?—The large supply-house nearest to most beekeepers in this state is at Zanesville.
IN WESTERN PENNSYLVANIA?—You are a next-door neighbor.
ELSEWHERE.—Zanesville service will yet commend itself to you as being the best obtainable.

The leading line of bee supplies, unsurpassed shipping facilities, years of experience, and painstaking care in packing and forwarding goods, fair and considerate treatment, all insure a degree of satisfaction that can scarcely be duplicated elsewhere.

If exasperating delays or otherwise unsatisfactory service have been your past experience, give us a chance to demonstrate the superiority of the service we offer.

Ask for our free illustrated catalog.

E. W. Peirce,
22 So. Third St. Zanesville, Ohio
Distributor for the largest bee-supply factory in the world

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

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BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest, and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cts.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET-CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.
Please send me the items checked above.

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D.....

Town

State

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Choice well-ripened clover honey in 60-lb. cans, quality guaranteed. J. F. MOORE, Tiffin, Ohio.

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

FOR SALE.—White-clover-basswood blend extracted honey, $8\frac{1}{2}$ cts. J. G. BURTIS, Marietta, N. Y.

Amber honey, barrels, 6 cts. lb.; 60-lb. cans, $7\frac{1}{4}$ cts. lb. Light-amber honey, 8 cts. in 60-lb. cans. STRINGHAM, 105 Park Place, New York.

FOR SALE.—White-clover honey in 60-lb. cans, packed two to the case, now granulated, at 9 cts. per lb. J. E. HARRIS, Morristown, Tenn.

FOR SALE.—50,000 pounds of amber honey in 60-lb. cans or friction-top pails. Best quality; prices right; sample. E. S. MILLER, Valparaiso, Ind.

Best flavor alfalfa-sweet-clover honey; 2 60-lb. cans, \$9.50, f. o. b. here; delivered west of Chicago at 9 cts. a pound. WESLEY FOSTER, Boulder, Col.

FOR SALE.—Buckwheat honey at 7 cts. in new 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—2 bbls. amber honey for baking or bee-food; cheaper than sugar. No disease. A. KORNS, 2125 Ashland Ave., St. Joseph, Mo.

Clover or basswood honey, fine quality, 8 cts.; 5 or more cases, $7\frac{1}{2}$; amber, 7 cts. in 60-lb. cans. C. B. HOWARD, Geneva, N. Y.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 per can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots.

ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Medium-brood foundation, 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash; 27 trade. J. F. ARCHDEKIN, Bordenville, La.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMAYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less than car lots.

J. E. HARRIS, Morristown, Tenn.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.

"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

HONEY LABELS.—New designs. Lowest prices. Cat. free. LIBERTY PUB. CO., Sta. D., bx 4E, Cleveland, O.

Frames, high grade, low price. SIVELEVETTS FRAME WORKS, Whitneyville, Ct.

FOR SALE.—40 cases of two 5-gallon cans at 20 cts. each. Guaranteed O. K.

C. S. WATTS, Monticello, Ill.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash.

C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grows in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—70 T-tin supers with inside fixtures, used one season; price \$20.00.

G. L. ALLEN, Ulster, Pa.

BEE SUPPLIES, all kinds. Low prices. Discount for early orders. Catalog free.

WM. ROUSE, Mexico, Mo.

FOR SALE.—*Gleanings, Review, and American Bee Journal* from 1898 to date. Most of the volumes complete. F. W. LESSER, East Syracuse, N. Y.

BEE SUPPLIES.—Write for prices before buying. We can save you money. We make a specialty of special-size hives and frames to order.

THE M. C. SILSBEE CO., Rt. 3, Cohocton, N. Y.

EASTERN MICHIGAN beekeepers especially are invited to send for my catalog of Root's goods and specialties. Try me for satisfactory goods, prices, service. ARTHUR RATTRAY, Almont, Mich.

EXTRA SUPERS.—100, 2M10, for 4x5x1 $\frac{1}{4}$ sections, painted, good condition, 60 cts. each; \$50 for the lot. Also 25 2S8, painted, fair shape, 20 cts. each. J. B. HOLLOPETER, Rockton, Pa.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your orders.

R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

FOR SALE.—Half-interest in bee business in one of the best locations in New York State, with as good an equipment as could be asked for. Will accept small payment down, and buy back half-interest any time partner is dissatisfied. Do not write unless you mean business.

M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—At all times, good second-hand empty 5-gallon honey-cans in A1 condition, packed two in a case, at 25 cts. per case, terms cash, f. o. b. at one of our various factories.

NATIONAL BISCUIT COMPANY (Purchasing Department), 409 West 15th St., New York City.

FOR SALE.—Ford motor truck, used one year; good as new; just the thing for outyard work. Priced to sell. Satisfaction guaranteed. For particulars and photographs write

LEON MORRIS, Elizabethtown, Ind.

SECTIONS \$2.85 PER THOUSAND.—*The Beekeepers' Review* is making a lead on sections, and furnish their subscribers with *any make you prefer* at from \$2.85 to \$4.50 per M. Order the same make of section as usual, but do not send us but \$4.50 per M. for the No. 1 grade, and 50 cts. less for the No. 2 grade. One make can be furnished as low as \$2.85 per M. for the No. 2 plain. *Do not buy a single supply* for the bees without first investigating our co-operative plan of buying. Write your wants to *The Beekeepers' Review*, Northstar, Mich.

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PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea! Send data. Advice and two wonderful Guide Books free. Highest reference.

E. E. VROOMAN & Co., 834 F., Washington, D. C.

POULTRY

FOR SALE.—Pure-bred Sicilian Buttercup eggs, \$1.00 for 15. MRS. D. POTTER, Rt. 4, Ashtabula, O.

Some farmers in this locality have pure-bred eggs; 50 cts. for 15. Write FRED SALZMAN, Bedford, Ill.

BABY CHICKS. Wycoff, and a few of Barrow's choicest. Prices reasonable.

LINESVILLE PULLET HATCHERY, Linesville, Pa.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize-winners. Eggs for hatching, \$2.00 for 13; \$4.00 for 30. E. B. BROWN, Box 323, White Plains, N. Y.

FOR SALE.—Winter-laying White Wyandottes 200-egg strain, built up after years of careful selection and breeding from famous prize-winning stock. Setting eggs, \$1.05 to \$5.00 for 15, according to pen. Day-old chicks, in lots of ten or more, 25 cts. each. Place orders now for early delivery.

C. E. BLANCHARD, Youngstown, O.

WANTS AND EXCHANGES

WANTED TO CONTRACT.—White sage bulk comb honey in carload lots only. Correspondence solicited. W. J. OATES, Los Flores Apiaries, Lompoc, Cal.

Bees wanted within fifty miles St. Albans or Montreal. Myself pack and move them.

F. ALLEN, Philipsburg, Quebec, Canada.

AUTOMOBILE.—20-horse-power roadster, just overhauled, new piston rings and new gears, to exchange for bees. Care of THE A. I. ROOT Co., 915 Walnut St., Des Moines, Ia.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Ida.

Terry followers wanted on a farm run to promote his teachings. Opportunities for health-seekers and students. No tuberculars, several industries started. Pay in proportion to services. Agriculture, hygiene, and mechanics taught. Owner left sanitarium for farm "incurable" in 1900. Visited Terry and followed his methods to health and renewed success at engineering. Often mentioned in "Health Hints." Now on farm again for better environment and to help others. EMERY ANDREWS, Granville Center, Bradford Co., Pa.

REAL ESTATE

FOR SALE.—A 741-acre ranch and 200 colonies of bees in Menard Co., Tex. Unlimited range for bees, and splendid opportunity for right party. For particulars address G. W. ROBERTS, Alpine, Tex.

FOR SALE.—Farm of 13 acres; 200 hives of bees, mostly double-walled; Hoffman frames; run for comb and extracted; in one of the best locations of Schoharie Co. For further particulars address owner.

E. J. DIENST, Gilboa, N. Y.

Twenty acres in San Joaquin Valley, California, in fruits, vegetables, alfalfa with cows, pigs, poultry, and bees will pay you steady, substantial profits. Delightful climate, rich soil, good schools, churches, fine roads. Thrifty, hospitable neighbors. Write for free books. C. L. SEAGRAVES, General Colonization Agent A.T.&S.E. Ry., 1928 Ry. Exchange, Chicago.

OHIO, WEST VIRGINIA, AND VIRGINIA FARMS offer opportunities for you; \$20.00 per acre up. Easy payments. Mild climate. No long cold or hot spells. Social Life, Fertile Soil, good markets, high prices. On Railroad. Convenient to Trains. Write for free magazine and other information. F. H. LABAUME, Agr'l Agt. Norfolk & Western Rwy., 246 N. & W. Bldg., Roanoke, Va.

MISCELLANEOUS

Burt's superb Dahlias, 20 kinds, \$1. Postal brings information. H. BURT, Rehoboth, Mass.

No flower-garden is complete without dahlias and gladioli. We grow only the choice varieties. Six dahlias, all different, 50 cts.; 13 kinds for \$1.00; 25 gladioli, finest colors, 50 cts.; 60 for \$1.00. All postpaid.

S. W. PIKE, St. Charles, Ill.

CHEESE.—Swiss, 5 pounds, \$1.40; brick, 5½ pounds, \$1.15; American, 5 pounds, \$1.15; Limburger, 4 pounds, 85 cts. Ask your postmaster what the postage is on 6 pounds to your city, and add postage to the above amount, and get some real cheese.

E. B. ROSA, Monroe, Wis.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

FOR SALE.—Fifty colonies Italian bees. CLOSSON SCOTT, Newton Falls, O.

Try my MAPLEWOOD Queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

Three-band Italian queens, 1.00 each; \$9.00 a doz. EDITH M. PHELPS, Binghamton, East End, N. Y.

FOR SALE.—Well-wintered bees. Hoffman wired frames. JULIUS GENTZ, Wabeno, Wis.

Italian queen-bees, \$1.00 each; tested, \$1.50. J. B. CASE, Port Orange, Fla.

FOR SALE.—200 colonies bees and equipment, \$500. MRS. S. C. KNOWLTON, Mazeppa, Minn.

FOR SALE.—140 colonies well-kept bees, on good alfalfa locations; also 50 extra hives. FRED FREISE, Los Banos, Cal.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Mt. Hamilton Apiary, Italian Queens. Untested, 75 cts.; tested, \$1.50 and up. CHAS. WOHL, 360 N. Lincoln Ave., San Jose, Cal.

Two-frame Italian nuclei with queen, \$2.50.
AUGUST NIGABOWER, Ithaca, N. Y.

FOR SALE.—We offer to some one in this or near-by state, 50 to 300 colonies, 8-frame, first class.
THE E. F. ATWATER CO., Meridian, Ida.

Three-band vigorous Italian queens, "Mendelian" bred. Untested, \$1.00; tested, \$1.50; breeders, \$5 and \$10. CHAS. W. QUINN, Fort Myers, Fla.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

Doolittle and Clark Breeding Queens ready for delivery May 1. Prices, \$10, \$5, \$2.50. Untested queens in June. Marietta, N. Y.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Italian bees, full colonies, 3-frame nucleus, and pound packages. Let us quote you on what you need. Untested Italian queens, \$1.10; tested, \$1.50. I. J. STRINGHAM, 105 Park Place, New York.

Golden Italian queens about May 1. Select tested, \$1.25; tested, \$1.00; untested, 70 cts.; dozen, \$8.00; select untested, 80 cts.; dozen, \$9.00. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Order queens now for March and April delivery. Three-banded Italians, the business bee; untested queens, \$1.00 each, fully guaranteed; no disease. M. F. PERRY, Bradentown, Fla.

Ready now, best Italian bees, 1 lb., \$1.00; untested queen, 65 cts.; two-frame nucleus with queen, \$2.25. J. B. MARSHALL, Rosedale Apiaries, Big Bend, La.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Guaranteed to please or your money back. Circular free. J. I. BANKS, Dowelltown, Tenn.

Golden and three-banded Italians. Untested, 85 cts.; tested, \$1.25. Bees in package, \$1.25 per lb. Satisfaction guaranteed. D. L. DUTCHER, Bennington, Mich.

FOR SALE.—40 colonies Italian bees in 10-frame dovetailed hives, all wired frames; also \$85 worth of other fixtures. All for \$200; fine condition. E. C. DAVIS, Greensburg, La.

FOR SALE.—75 colonies in ten-frame Root hives for \$350. No disease. Modern extracting-outfit at less than half price if taken with the bees. PRESSLER, Williamsport, Pa.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$5; 10-fr., \$6, with queen. HENRY SHAFFER, 2860 Harrison Ave., Cincinnati, O.

Golden California Goldens, 60 cts. each. We sell cheap, as we manufacture all of our own supplies. ALAMEDA APIARIES, 1042 Alameda Ave., San Jose, Cal. W. A. BARSTOW, Breeder.

Now booking orders for three-frame nuclei, Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction.

S. G. CROCKER, JR., Roland Park, Md.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

To GLEANINGS readers, greetings for the new season. I thank you for past favors, and solicit your 1916 orders for Italian bees and queens. Your name on postal will bring prices promptly. J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Bees in pkgs.; 2-lb. swarm, \$1.75; 3-lb. swarm, \$2.50. Untested Italian queens, 75 cts. each or \$8.00 per doz. Bees are free from disease, and we guarantee safe delivery. IRISH & GRESSMAN, Jesup, Ga.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted. J. W. SHERMAN, Valdosta, Ga.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY CO., Haileybury, Ont.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

We want to tell you about our bees, quote our prices on queens and bees by the pound, and let you know the express rate from Brady to your station. Let us hear from you. R. V. & M. C. STEARNS, Brady, Tex.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

Three-banded Italians, ready after June 15. Will book your orders now with 10 per cent cash down. Queens, untested, 75 cts. each; \$8 per doz. Nuclei, 1-fr., \$1.50; 2-fr., \$2.25; 3-fr., \$3.00. Full colonies, \$7.00 each. EGGERS APIARIES Co., Rt. 1, Eau Claire, Wis.

FOR SALE.—Three-banded Italian queens and bees. I am booking orders for June delivery, untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Write for circular and price list. ROBERT B. SPICER, Rt. 181, Wharton, N. J.

Queens ready in May. Northern-bred three-banded Italians, bred for gentleness, wintering, and honey-gathering. Select untested, \$1 each; 6, \$5.00; select tested, \$1.75 each. Send for price list and free booklet, How to Transfer, Get Honey, and Increase. J. M. GINGERICH, Kalona, Ia.

FOR SALE.—Early delivery of three-band Italian queens, pure mating, I guarantee. Any number for only 75 cts. each. These are bred from the best stock and by the best methods. No disease. We are better prepared than ever before to fill orders promptly. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.

G. W. MOON, 1904 Park Ave., Little Rock, Ark.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

A daughter of one of *Dr. Miller's best honey queens*, and the *Beekeepers' Review* for 1916 for only \$2.00. A daughter of one of the very best honey-getting queens selected from 1100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the *Review* for 1916 for only \$1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy.

THE BEEKEEPERS' REVIEW, Northstar, Mich.

If you want a queen for that queenless colony, we can send it to you by return mail. Young tested queens, \$1.00, \$12.00 per dozen. Untested, \$1.00; \$9.00 per dozen. We breed the three-band Italians only, and we breed for the best. Our thirty years of queen-rearing proves this. We never had a case of foul brood in our apiaries, and we guarantee every queen sent out by us.

J. W. K. SHAW & Co., Loreauville, La.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 135, Buffalo, Tex.

Three-banded queens and bees by the pound, ready now. One untested queen, 90 cts.; \$9.00 per doz.; \$17.50 for 2 doz.; \$65.00 for 100. Tested, \$1.50 each; fine breeders, \$5.00 each; 1-lb. swarm with fine queen, \$2.25 each; without queen, \$1.50 each; 50 for \$70.00; 100 for \$135. Add queens at above prices. I can furnish you in any quantity from one to 1000 queens or swarms of bees at above prices from April 15, thruout the season. Write to Curd Walker, the Queen-breeder, your wants. He will give you a square deal. Box 18, Rt. 1, Jellico, Tenn.

FOR SALE.—Swarms of Italian bees in packages, 1 lb. of bees, \$1.50; 2 lbs. of bees, \$2.50; for 50 or more they are 12½ cts. less. Untested Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. No reduction on quantity of queens for April and May. Quality, service, safe delivery, and no disease, I guarantee. We spare no labor nor money to produce the best for you is why we cannot make a lower price. Early swarms get the honey. We can deliver the goods with pleasure to both of us.

W. D. ACHORD, Fitzpatrick, Ala.

The successful package-shipper and queen-breeder.

BEES AND QUEENS.—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey-gatherers. We breed this stock only, and guarantee delivery only to points west of the Rocky Mountains. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100; tested queens, \$1.25 each; \$12 per dozen; \$85 per 100. Three-frame nuclei, \$2.25 each; \$200 per 100. Bees, ½-lb. packages, 75 cts. each; \$6.00 per 100; 1-lb. packages, \$1.00 each; \$85 per 100. Add price of queens to above packages. Complete catalog free on application. SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier, if necessary. Bees are all on standard Hoffman frames, and combs are all built on full sheets of foundation and wired frames. We guarantee bees to be free from disease.

THE HYDE BEE Co., Floresville, Tex.

QUEENS.—Italians exclusively; golden or leather-colored. One select, untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with ten per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction guaranteed. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

HELP WANTED

WANTED.—Expert beeman to help in business of 1100 colonies. Work starts April 15. Good wages. EARL HANKS, Hageman, Ida.

WANTED.—One student and one experienced helper in the largest and probably the best-equipped apiary in Canada. G. A. DEADMAN, Brussels, Ont., Can.

WANTED.—Man with some experience in handling bees to assist in large apiaries. Please give full particulars in first letter.

JOHN B. AHLERS, Rt. 1, West Bend, Wis.

WANTED.—Industrious young man, fast worker, and of clean mental and body habits, as a student helper in our large bee business for 1916 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.

W. A. LATSHAW Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Position in apiary, preferably in northern California or Oregon; have had some experience. Prefer work in queen-rearing.

E. C. TOWNE, Elroy, Wis.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUIRIN'S superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular. H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italians bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

TRADE NOTES

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE-HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of both 8 and 10 frame packed single and 5 in a package, which we offer, to close out, as follows: YW 5/8, one story, with frames, eight frame; 8 packages, one hive each, at \$1.75, and 12 packages,

HIGHEST CASH PRICES

. . Paid for . .

Fine Yellow Beeswax and White Extracted Honey

Trade Your Honey and Wax for Bee Supplies

Send us samples, and state price wanted

The A. I. Root Company, Medina, Ohio

five hives each, at \$8.00. The same in 10-frame size, 2 packages, one hive each, at \$1.85, and 3 packages, five hives each, at \$8.50.

NO. 2 OR B GRADE HOFFMAN FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

METAL SPACERS SLIGHTLY DEFECTIVE.

In making the metal spacers for the metal-spaced frames there are a percentage which come out either sheared a little scant on one side, or with slight breakings in the tin where it is drawn up into the spacing-boss. These are hardly passable as perfect stock, but in actual use they will answer every purpose as a spacer. Rather than throw these into the scrap we will offer them while they last, including nails to nail them on, at 20 cts. per 100; \$1.80 per 1000. Transportation charges extra.

1½ H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or, including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1½-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTED OR CHUNK HONEY.

We are offering, while they last, the following bargains in nailed supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

200 D9/10, nailed and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100.

410 D8/10, nailed, and some painted two coats, some one coat; 273 not painted. Sell new for 90 cts.; offered at \$5.00 for 10; \$45.00 per 100.

180 D8/10 nailed supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first two lots are the 5½-inch supers with hanger cleats and shallow Danz. frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

TOBACCO DUST FOR KILLING INSECTS.

Fine tobacco dust is used for dusting on lettuce and other plants for killing the insects, as well as for fertilizer. We have two kinds of dust—the very fine, from ground stems, which we offer at 20 cts. for 10 lbs.; \$1.50 per 100 lbs., or a case of about 400 lbs. at \$1.00 per 100 lbs. We can supply, also, a much coarser dust from leaves, which is much stronger, at 50 cts. per 10 lbs., \$3.50 per 100 lbs.

ALSIKE CLOVER SEED.

We still have a number of bushels of alsike clover seed, which we offer, subject to previous sale, at \$10.00 per bushel, with 25 cts. extra for bag to ship in. Any quantity from a peck up at this rate. Lot of two bushels or over, no extra for bags. It will not last long at this price. If you want some, better order promptly.

SWEET-CLOVER SEED.

We have a good supply of very choice hulled white-sweet-clover seed scarified for quick germination, requiring only 10 lbs. per acre for a good stand. We offer this for a short time to reduce stock at \$18.00 per 100 lbs. Now is the right time for sowing with a nurse crop to produce hay or bloom with seed next year. We have also choice hulled yellow which we will sell at \$15.00 per 100 lbs. A thousand pounds of hulled white for shipment direct from Little Sioux, Iowa, not scarified, offered at \$15.00 per 100 for prompt acceptance.

BEEHIVE PAINT ADVANCED.

The prices of all ingredients used in making paint has gone so high that we can no longer maintain prices on paint which have been in force. We quote till further notice, \$2.75 per gallon; \$1.40 per half-gallon; 75 cts. per quart; 40 cts. per pint, with a corresponding advance in the wholesale and jobbing price.

SPECIAL SASH FOR COLD-FRAMES.

We have several dozen sash made for Root brooders with four lights, 10 x 14, and measuring outside 24x34. We offer them open at 30 cts. each; 6 for \$1.50; with glass at 55 cts. each; 4 for \$2.00. These might be used on small cold-frames for starting plants and are much cheaper for size than the regular hot-bed sash.

IMPROVED CAPPING-MELTER.

The capping-melter illustrated elsewhere in this issue is covered by Beuhne's patent issued several years ago, under which we secured license to manufacture. We will furnish these machines made of galvanized iron at an introductory price of \$15.00; or, made of sheet copper, at \$25.00. If these give the satisfactory service we have every reason to believe they will we expect to catalog them in the next edition as "Beuhne's Improved Capping-melter." It would make too long a name to include in it the names of those instrumental in so improving the original Beuhne as to make it so much more satisfactory in operation.

THE A. I. ROOT COMPANY, Medina, Ohio.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

Beauty PATTERN

Twenty-five Cents for New Subscription to Gleanings Six Months and Premium Pattern

Select any Pattern as premium, sending 25 cents in stamps for a new six-months' subscription to **GLEANINGS IN BEE CULTURE**. Be sure to give the pattern number and size desired, and the complete address of the new subscriber whose order you send.

Canadian postage, 15c extra;

Foreign postage, 30c extra.

Selling price of Patterns, 10 cents each.

The A. I. Root Company Medina, Ohio

1676.—Girls' Dress. Cut in 4 sizes: 6, 8, 10, and 12 years. It requires 3 yards of 44-inch material for a 6-year size. Price 10 cents.

1668.—Girls' Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. It requires 3½ yards of 44-inch material for an 8-year size. Price 10 cents.

1667.—Ladies' House Dress. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires 6½ yards of 44-inch material for a 36-inch size. The skirt measures about 3 2-3 yards at the lower edge. Price 10 cents.

1670.—Costume for misses and small women. Cut in 3 sizes: 16, 18, and 20 years. It requires 5½ yards of 36-inch material for an 18-year size. The skirt measures about 3 yards at the lower edge. Price 10 cents.

1371.—Girl's dress. Cut in 4 sizes: 2, 4, 6, and 8 years. It requires 2¾ yards of 36-inch material for a 6-year size. Price 10 cts.

1662-1682.—Ladies' Costume. Waist 1662, cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires 3 yards of 36-inch material for a 36-inch size. Skirt 1682, cut in 6 sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. It requires 4¾ yards of 44-inch material for a 24-inch size, which measures 3 1/3 yards at the foot. This calls for two separate patterns, 10 cts. for each pattern.

1535.—Ladies' Over-all Apron. Cut in 3 sizes: Small, medium, and large. It requires 6¼ yards of 36-inch material for a medium size. Price 10 cents.



HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

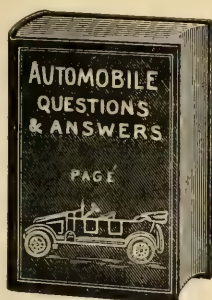
We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

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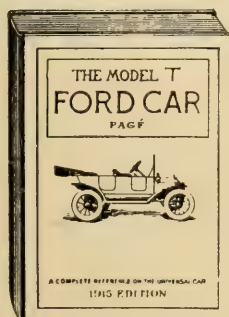
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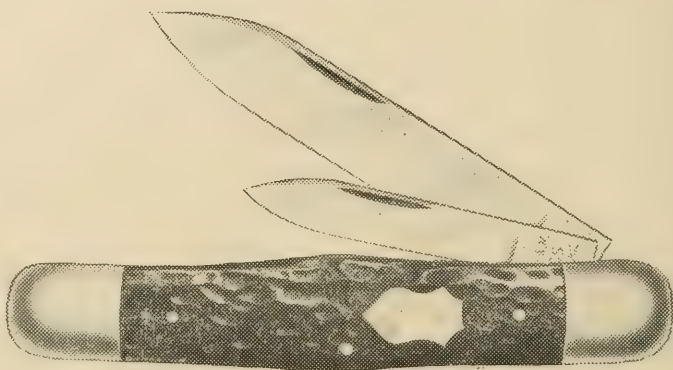


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HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, O.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following:

Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13¼ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uni-

form color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells altogether, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon: It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previous ly contained honey may be used for strained honey

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.
Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

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Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

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Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus ..	\$2.00	Three-frame Nuclei ..	\$4.00	Eight-frame Colony ..	\$ 8.50
Two-frame Nuclei ...	3.00	Five-frame Nuclei ...	5.00	Ten-frame Colony ..	10.00

Address all communications to

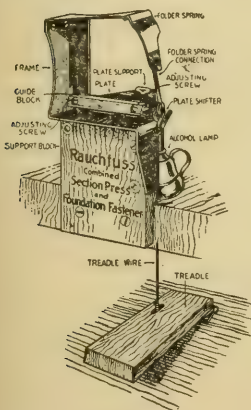
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	1	6	12
1/2-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

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Gleanings in Bee Culture

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

INDIANAPOLIS.—Comb honey at this time is moving very well; however, extracted is going rather slow. Honey is selling about the same: Choice No. 1 white comb is selling at \$3.75 to \$4.00 per case; No. 2 at \$3.50. Extracted of good quality is bringing 9 to 11. We are paying 28 cts. cash or 30 in trade for beeswax.

Indianapolis, April 19. WALTER S. POWDER.

DENVER.—Local demand for comb honey light, with ample supply. We are selling in a jobbing way as follows: No. 1, per case of 24 sections, \$2.93; No. 2, \$2.70 per case; white extracted, 8½ to 8¾; light amber, 8, 8¾; amber, 7 to 8. We pay 25 cts. per lb. in cash and 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.
Denver, April 20. F. RAUCHFUSS, Mgr.

KANSAS CITY.—Our market is overstocked with extracted honey, with a very light demand. The receipts of honey are light, and the demand just as light. We quote No. 1 white comb, 24-section cases, at \$3.00; No. 2 ditto, \$2.50 to \$2.75; No. 1 amber ditto, \$2.75 to \$3.00; No. 2 ditto, \$2.50 to \$2.75; white extracted, per lb., 7 to 7½; amber ditto, 5½ to 7. Beeswax, No. 1, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.
Kansas City, April 15.

NEW YORK.—There is no demand for comb honey to speak of, and while No. 1 and fancy white are cleaned up, there is quite a stock of off grades still on the market, for which there is practically no demand, and hard to dispose of. The market on extracted honey is in a little better shape, and prices now show an upward tendency, especially on fancy West India honey. Supplies are sufficient to meet all demands. Beeswax is steady at from 29 to 31, according to quality.

New York, April 19. HILDRETH & SEGELKEN.

CHICAGO.—Trading is of a very limited nature in both comb and extracted honey; and especially is this true of the comb situation. Our stocks are not heavy, but there is a great deal of it offered on the market, and prices are uncertain, ranging for best grades of white comb from 12 to 15 cts., but sales are made mostly at 13 for No. 1 to fancy; extracted white, 7 to 8; amber grades 6 to 7. Beeswax, 30 to 32.

R. A. BURNETT & CO.
Chicago, April 18.

ST. LOUIS.—Our honey market is very quiet, and the demand limited. Quote southern extracted and strained, bright amber, in barrels, 5 to 5½; in cans, 6 to 6½; dark, ½ to 1 ct. per lb. less. Comb, amber, 10 to 12; dark and inferior, 9 to 11; broken and leaking, 7 to 8; fancy clover, 14 to 17. Comb honey in neat clean cases of fancy clover, from \$3.25 to \$3.50, and light amber from \$2.50 to \$3.00; undergrades less. Beeswax, prime, 29½; impure and inferior, less.

R. HARTMANN PRODUCE CO.
St. Louis, April 22.

MATANZAS.—Honey is selling here at the present time at 45 cents a gallon, in barrels.

Matanzas, Cuba, April 4. ADOLFO MARZOL.

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Saving Safety

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Ample Capital and Surplus, capable management, strict state supervision, enable this bank to afford the highest degree of protection for the funds of its depositors.

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A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

ZANESVILLE.—At a season when the honey business is usually light, we are having a fair and normal demand. There has been no marked revision of prices. As heretofore, best grades of white comb bring around \$4.00 in single-case lots. Some lots of Western are offered at \$3.75. On quantity orders some concession is allowed, and of course jobbers are given the usual 12 per cent discount from list prices. Extracted in cans is quoted at 9 to 11 for best grades of white, there being little demand for amber. Twenty-nine cents cash, 31 in trade, are ruling prices paid producers for beeswax. Selling prices are largely arbitrary, varying with quality and quantity.

Zanesville, April 20.

E. W. PEIRCE.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

A. L. BOYDEN, Advertising Manager

Issued semi-monthly

ADVERTISING RATES

Twenty-five cents per agate line flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

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Columns to page, 2 (regular magazine page).

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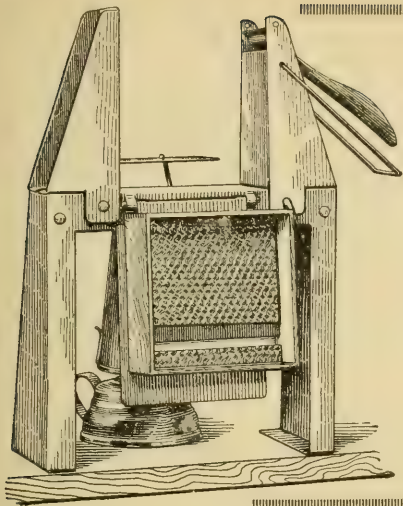
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Woodman's Section-fixer Gold Medal

for the finest comb honey at the recent Michigan fiftieth anniversary convention was won by Floyd Markham, of Ypsilanti, Michigan. He says:

"We have several kinds of machines for folding sections and putting in the starters, but since we got one of your Section Fixers, about two years ago, no other machines for the purpose are used in our shop. It pays to use bottom starters, and your Section Fixer is the only machine that I know of that will do the job at any rate of speed and do it right."

DO YOU KNOW that with this machine you always handle large pieces of foundation, which makes the putting in of bottom starters easy! Special circulars will tell you all about it. Price \$2.75 with lamp and one form block, shipping weight 5 pounds, postage extra.

A. G. WOODMAN COMPANY
GRAND RAPIDS, MICH.

Established 1885



It will pay you to get our 64-page catalog and early-order discount

Beekeepers' Supplies

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

60-lb. Honey-Cans

Good second-hand, fit to refill with honey for use again. . . .

For shipment from New York, Philadelphia, or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

The A. I. Root Company
New York Philadelphia Medina, Ohio

Paint Without Oil

Remarkable Discovery That Cuts
Down the Cost of Paint Seventy-Five Per Cent

A Free Trial Package is Mailed to Everyone
Who Writes

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather-proof, fire-proof, and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

DESTROYS DISEASE GERMS.

This paint is a strong disinfectant and effectually destroys disease germs and vermin. On this account it is especially valuable for the interiors (as well as exteriors) of dairy barns, poultry houses, basements, stables, etc.

Write to Mr. A. L. Rice, Manufacturer, 17 Wardwell St., Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

Best by test. Prices on request.

"Superior" Foundation

Thousands of pounds ready for prompt shipment. Save 25 to 50 per cent by having your beeswax manufactured in-to Weed-process Foundation.

Superior Honey Co., Ogden, Utah
"Everything in bee supplies"

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

BEE SUPPLIES Send your name for new 1916 catalog.

Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---30 cts. cash, 32 cts. in trade; wax delivered to Lansing.

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

NOW IS THE TIME

To order your supplies, and thus
have every thing in readiness for
the spring.

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

Don't Buy BEE SUPPLIES

Until You See
Our Catalog

Address

F. A. SALISBURY, Syracuse, New York

1631 West Genesee St.

Make This a Lewis Year

While you are starting the year's work---getting your bees ready for business---taking stock of supplies on hand and speculating as to what the season's outcome will be

Make This Resolution

That you will use LEWIS BEEWARE this year—because it means success insurance to you—because it means beehives and parts made of the best material by skillful workmen—because it means goods accurately and systematically packed—because it means sections made of bright lumber, highly polished, accurately dovetailed, and scientifically grooved.

Lewis Hives are Built Like Furniture
Lewis Sections are the **Kind that do not Break in Folding**

You will find LEWIS BEEWARE almost at your own door—thirty distributing houses in the United States and foreign countries. If you have not one of our catalogs send for copy at once.

G. B. Lewis Company, Watertown, Wis., U.S.A.
Exclusive Manufacturers Lewis Beeware

We Want Your Beeswax

Either for Cash or to be Made into

Dadant's Foundation

You are missing something if you are not using our foundation. We guarantee satisfaction in every way.

OLD COMBS and cappings rendered into beeswax on shares. Your share bought for cash or made into foundation. A postal will bring you full information, also our Bee-supply Catalog.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager

H. H. ROOT, Managing Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

MAY 1, 1916

NO. 9

EDITORIAL

THERE are several very strong articles in this issue for the expert honey-producer. Particular mention should be made of the one by J. A. Green on page 351 for a new-old plan for freeing supers of bees without any bee-escapes, brushing, or smoking, inside of 15 minutes. Do not forget to read this and the other articles.

Over-supply of Comb Honey

THE market is still well supplied with comb honey, and, as we have stated before, considerable will be carried over, and, of course, that means that some of it will be granulated. Extracted honey of good table quality seems to be pretty well cleaned up, and beekeepers, where they can do so, might do well to change over to extracted. The prospects for a crop of clover honey, alfalfa in the West, and mountain sage in California, are excellent. If there should be another big crop of comb honey the same as last year, there will be a slump in prices.

Advertising, like the Hertizian Waves of the Wireless, Radiate in all Directions

ELSEWHERE mention of the fact is made that extracted honey is being fairly well cleaned up. Said an advertising man of large experience, "Mr. Root, your large campaign of advertising honey has not only helped you, but it has boosted all of your competitors who have honey for sale. Such competitors should be exceedingly grateful to you for opening up the market to them," and several of them are. While, probably, more comb honey has been sold this year than any previous one, the production was away beyond the demand.

Death of Chas. H. Lake

MR. C. H. LAKE, of Baltimore, formerly an occasional correspondent for GLEANINGS, passed away on Feb. 20 last. He was, at the time of his death, a member of the

Maryland Horticultural Society, of the Luther Burbank Society, and in 1896 he was appointed to a chair in the Maryland Agricultural College, which he held for about five years, during which he conducted a course in bee culture at the College.

Our Cover Picture

A BEEKEEPER owning several out-apiaries, who does not have at least a light roadster for quick trips and light hauling is the exception rather than the rule. Our cover engraving shows Mr. J. W. Schlenker (whose article appears on page 354), standing by his machine just ready for the out-apiary. The light detachable box on the back of the runabout furnishes plenty of space for all the load that is required for quick trips.

We are very sorry that we are unable to use more of the interesting articles on out-apiary management in this special number. Our readers responded so nobly to our request for material that we could have published two or three special numbers on this subject. We have reserved quite a number of these splendid articles for use later on in the season.

We still have room for a few more good articles on the subject of wax production and wax-rendering for our June 1st issue. Such material should reach us, however, not later than May 10.

Drifting in Quadruple Winter Cases

WHILE our bees have come out in excellent condition in the big winter cases, four hives to the case, we are having considerable trouble from drifting—that is, flying bees going into the wrong entrance.

Of course there is more or less drifting in the early spring in any yard; that is, the younger bees, and older ones as well, are quite inclined to fly into the entrance of the strongest flyers during their playspells; but the trouble from drifting is considerably greater with the big winter cases.

Each case looks like every other one, and, moreover, the entrances are side by side.

Not only the home yard but at the out-yards we have discovered that some colonies that were strong a week ago are now very weak, while the colonies with entrances alongside of them are abnormally strong. In some cases one hive in a pair will be so strong there is hardly room to get in another bee, while in the next hive in the pair there are but very few bees left.

Our winter cases were placed last fall with the entrances facing all points of the compass, for the express purpose of avoiding this drifting; but apparently it failed to some extent. We hope to overcome the difficulty another year by placing each case near some shrub or bush, and at the same time paint the sides of the case over the entrance a different color from the other side. Otherwise these big cases seem to be a success.

Cherry-growers Want More Bees

WHAT beekeepers may say in regard to the value of bees as pollinators is sometimes considered biased, even tho the beekeeper is also a fruit-grower himself. When fruit-growers, however, who have no interest at all in the bees aside from their value to the fruit crop, demand bees, and more bees, it is pretty convincing evidence. We clip the following from the March 11th issue of *The Packer*, a California paper.

BEES TO AID IN POLLINATION.

Hood River, Ore., March 10.—Growers of the Mosier district have reached the conclusion that the district needs more bees to aid in the pollination of tracts at the blooming season. The Mosier cherry crop was very light last year because of rain during the blossom period. Growers say that the crop would have been made much heavier if bees had carried the pollen, which was too moist to have been transported by winds. The Mosier growers are adding apiaries to their orchards.

Concerning Queens Mailed from States Having No Inspection Laws

SEVERAL breeders living in states having no foul-brood law or bee-inspection law of any kind are asking for particulars as to shipping bees into other states.

There need be no difficulty along this line provided the honey used in making queen-cage candy is diluted and boiled at least twenty minutes. A statement signed by a notary should be secured, and a copy of this in the form of a printed certificate put on the mailing-cage. This conforms to the postal regulations. Unfortunately, how-

ever, as pointed out elsewhere in *Stray Straws*, boiled honey is not as good for the purpose as the unboiled. Where possible, an inspector's certificate should be used to comply with the ruling, and an unboiled honey from a source where there is no bee disease. A honey of unknown source should not be used.

Some New Automatic Folding Machines

WE explained that our last issue was late, owing to the fact that we were unable to get the paper for *GLEANINGS*, notwithstanding that our order for a carload of paper had been placed months before. It has been very difficult to get print paper, and some of the smaller magazines and papers have been compelled to suspend publication. Paper has gone up two or three times its ordinary price; and the worst of it is, it is very difficult to get. We finally secured a couple of carloads on contract, and hoped we should be able to get *GLEANINGS* out promptly; but the installation of some new automatic folding machinery delayed us again on our issues for April 15 and May 1. We will soon catch up now.

By the way, one of these folders will pick up and fold 64 pages at a time. The other machine does smaller work, including the cover of *GLEANINGS*. *GLEANINGS* office now has the latest there is in printing machinery, and it needs it.

How the Bees have Wintered

LATER reports show that bees have wintered remarkably well all over the country with one or two exceptions. Severe losses are reported in Montana, Wyoming, and Idaho. How general these losses may be thruout the territory named we are unable to say. The spring is, perhaps, a little late, but the conditions for the growth of clover have been remarkably favorable.

How the bees have wintered in Ontario is thus summarized in a report of the Provincial Apiarist, Morley Pettit, Guelph, Ontario, Canada.

Up to the present date, April 20, about 700 persons keeping 20,000 colonies of bees have reported a winter loss of about 13 per cent. The loss was largely due to starving, owing partly to an insufficient supply of stores on account of the high price of sugar, and partly to a mild spell in January, which caused the bees to rear brood and draw heavily on their stores. The few warm days early in April gave the bees a splendid cleansing flight, and their general condition now is reported as very good. Few really heavy losses have been reported from extensive beekeepers. More report-forms than

ever have been returned marked "Not a beekeeper." These are mostly from the smaller beekeepers, who are finding that specialization pays best. It is an indication that the industry is getting on a better business basis from year to year.

Clover prospects seem very good thruout the Province. The latter part of the season of 1915 being wet gave the new seeding an excellent start, and the scarcity of farm labor has increased the acreage seeded down. On the whole, present indications are for a good season, and beekeepers are even more optimistic than usual.

The Combless-package Business has Come to Stay

GLEANINGS was the first to start the business of selling bees in combless packages. Away back in the early '80's A. I. Root did a thriving business; but owing to some difficulties encountered it was dropped for the time being. Later on we took it up again, and succeeded, and our success has been duplicated by a good many others. Bees in pound packages are now being offered at very low prices, and what is shipped in this way is being guaranteed.* And this fact makes it possible for the honey-producer to bring his weak colonies up to the proper strength for building up in time for the harvest. A pound or two of bees in a colony in the spring will make a money-maker, whereas without the boost it will be only an expense and a drag on the business that season.

There is probably no danger in transmitting bee disease when bees are sent without combs. Bees by the pound by express are much cheaper than nuclei or colonies by express or by freight in carload shipments. In time, legislation may prevent the shipment of bees in any other way, or except under certain restrictions. The business has come to stay.

More Milk from Sweet-clover Hay than from Timothy; the Hay Not Injured by being Wet down

On page 519 of July 1st of last year we referred to that patch of yellow sweet clover from which we took two cuttings that we had on our place. It will be remembered that it furnished a great deal of honey, so that the bees of our home yard were going back and forth to that patch in a perfect roar.

We cut this sweet clover, and fed it to

* The prospective buyer should first ascertain whether safe arrival is guaranteed; if not, buy of one who does. There is no use in paying express on dead or half-dead bees.

our stock. It looked as if the stumps left would never grow. But they did, and we took off a second cutting. Just about as we were taking it into the barn it rained every day for two or three weeks. It looked as if the hay were ruined; but we gave it to the stock, and they ate it readily. It was so wet when put in the barn that it mildewed and turned white; and yet, remarkable to relate, our cows are eating it in preference to timothy or any other hay; and what is more, says our teamster, the cows are giving more milk than he had been getting from any other fodder the cows have.

Ordinary timothy, red clover, or alsike, if it has been left out in the wet for two or three weeks, as this has been, would have been ruined, not only for milk but for fertilizer as a top dressing; and yet the facts are that, with all this wetting and mildew, the cows prefer this sweet-clover hay and give more milk. The proof of the pudding is in the eating. What would the cows have said of it, if they could talk, if they could have had it without this wetting and if it had not been mildewed?

It is a well-known fact that sweet clover is not injured much by rain after it is cut, and this one thing is a great point in its favor. The farm papers are beginning to advocate it; and the time is not far distant when sweet clover will be grown from the Atlantic to the Pacific, and from the Great Lakes to the Gulf. When that day comes, the old proverb about "milk and honey shall he eat" will come true if it ever did in all the world's history.

Beekeeping in Wisconsin

A PIECE of work managed by N. E. France, Platteville, Wis., is sure to be managed well. H. F. Wilson, Chief of the Wisconsin Department of Economic Entomology, says of him:

It is now about 18 years since N. E. France began his work as State Apiary Inspector; and no greater tribute can be given him than to record the fact that thousands of the beekeepers of the state believe in him, and depend upon him for guidance. All these years he has worked steadily and unselfishly in the interests of Wisconsin beekeeping and beekeepers.

It is not surprising, therefore, that Bulletin No. 264, of the Agricultural Experiment Station of the University of Wisconsin, by N. E. France, ably assisted by his son, L. V. France, should be an interesting and valuable report, well worth the careful reading of any beekeeper.

In the first part, statistics are given concerning the general business of beekeeping, showing that about 90 per cent of those who start in bee culture fail because of a lack of knowledge of bees and of modern methods of honey production. A striking lesson is taught by two pictures. The first shows a rundown apiary of 75 colonies kept by a man who never reads nor studies. His average crop from the whole 75 colonies is less than 500 pounds of honey per year. The picture on the next page shows an up-to-date apiary of eight colonies that produced, in addition to honey used at home, 1240 pounds, while an increase to 32 colonies was made.

The number of colonies in Wisconsin is estimated at 150,000, and the annual honey crop as exceeding three million pounds.

The following principal honey-plants are named: Dandelion, May 1 to June 1; white and alsike clover, furnishing most of the surplus honey, June 1 to August 1; basswood, or linden, July 1 to July 20; sweet clover, July 1 to August 1; willowherb, or fireweed; buckwheat, goldenrod, Spanish needle, asters, and many fall flowers in late summer and fall.

The state is divided into six bee regions, and on page 9 a map is given showing the distribution of the principal beekeeping regions. The entire northern part of the state, so far as beekeeping is concerned, is practically undeveloped, altho fairly well adapted to beekeeping.

Italian bees are given the credit of being much less liable to have European foul brood. As might be expected from a man who has had so much to do with the control of bee diseases in his state, Mr. France has devoted several pages of the bulletin to a history of American and European foul brood. There is no question but that the diseases of bees in Wisconsin, as in other states, are forcing the slipshod beekeeper out of business. In time, of course, this will be of untold benefit to the industry. An illustration is given which proves this conclusively. In an old log house were stored the remains of about 300 colonies of bees that died of American foul brood eight years ago. The hives and combs, containing about 1000 pounds of honey, were piled one above the other in this open building where bees, both domesticated and wild, were robbing the honeycombs, carrying the honey to the beeyards of nearby beekeepers. How much better it would have been for the industry if such a beekeeper should never have started! It is fortunate, as Mr. France says, that the number of such beekeepers is rapidly decreasing. Better con-

trol and more immediate prospects of eradication of bee diseases exist in the state than ever before, partly due to the increased appropriation for apiary inspection made by the laws of 1913. Practically all the diseased localities are under control.

The Country Gentleman on Sweet Clover; How Beekeepers may Increase their Pasturage

In the issue of the *Country Gentleman* for April 8 appears a valuable article by Mr. E. Bowers on sweet clover for pasturage. As that magnificent paper has a very large circulation, and as this article speaks very highly of the legume, it will have a tremendous influence in breaking down the silly prejudice that exists in the minds of many farmers today, who regard it as a weed.

Among other things, Mr. Bowers says sweet clover makes a very fine pasturage for cows, horses, sheep, and swine; and while these animals will not eat it at first, they will soon learn to like it, and many times will eat it in preference to other fodders. As many as twenty medium-sized hogs will fatten on an acre of sweet clover; and some farmers claim that stock makes better growth.

Sweet clover has an advantage over alfalfa and red clover, he says, in that it will not cause animals to bloat, and bloating causes serious losses to the farmer and stockman.

It not only produces early pasturage, but extends over a longer period of time—long after other plants have ceased to grow. It defies a mid-summer drouth, and frequently is used to supplement other pasturage.

If sown in the spring it will furnish grazing by the middle of May, and it can be pastured thru the season. The second year it comes out early, and makes a very rapid growth.

The plant is gaining popularity in the corn belt; and one farmer states he has found one acre of sweet clover will pasture from two to three times as many cattle as any other plant of which he has any knowledge.

Finally, Mr. Bowers answers the complaint that sweet clover taints the milk. Careful investigation, however, shows that this is not true. In cases where it has done so, the cows were allowed to eat it while being milked.

This article in the *Country Gentleman* is an unusually strong one; and if our readers do not take the paper, they are advised to

get a copy (or, better, several of them) of the issue for April 8 and show it to their farmer friends. In this way sweet clover can be introduced in their locality, and make it much more valuable for their bees.

Sweet clover mixed with white clover or any other clover makes a very fine table honey; and the probabilities are that, as sweet clover becomes more and more popular among the farmers, white clover and sweet clover honey will be mixed by the bees, and thus most of our clover honey will be a combination of the two. Speed the day!

But that day will come sooner if our subscribers will take these articles that appear in the agricultural papers and bring them to the attention of their farmer friends within flying range of their bees.

=====

Missouri Bulletin on Farm Beekeeping

SOME bulletins put out by State Experiment Stations, while valuable to a beginner, are copied quite largely from other bulletins or from standard works in apiculture, hence are less interesting to the advanced beekeeper. Bulletin No. 138 issued in November by the State Experiment Station of College of Agriculture (University of Missouri), is not of this kind. The writers, E. E. Tyler and L. Haseman, have done a considerable amount of original work in the preparation of this bulletin, which, as stated in the introduction, is not intended for experienced beekeepers.

A discussion of the queen, drone, and worker, with something of the natural history of bees, is given in the fore part. On page 7, under "Races of Bees," the term "Goldens" and "Italians" are used synonymously. We do not believe that the authors intended this, for, obviously, while all goldens are supposed to be Italians, not all Italians are goldens.

For an uncapping-can a five-gallon or larger stone jar or crock is recommended, with a notched board across the top for a frame-rack. If a cracker-barrel supported over a galvanized-iron washtub had been recommended instead, it would have been a more practical outfit, in our opinion. No would have to be used. A stone jar would mention is made of a screen, altho one be a rather unwieldy affair to handle when filled with honey or cappings.

A very good frame-nailing guard or rack is illustrated; and to make the handling of frames somewhat more convenient and to lessen the danger of killing bees, the authors advise the use of a bottom-bar $\frac{1}{4}$ of an inch shorter than the top-bar. This "draws

in" each end-bar $\frac{1}{8}$ of an inch inside of the perpendicular. This is a good, practical idea, altho if full sheets of foundation are put in, the sheets will have to be cut a little shorter than usual, or better still, the ends of the sheet should be clipped off to fit the shape of the frame.

Practical instructions are given on handling bees, hunting bees, transferring, etc. For weak colonies in the spring a modification of the Alexander plan is given, consisting of placing the weak colony over a strong one, with the entrance in the opposite direction and a screen between the two colonies.

Methods of making increase are discussed, and for beginners natural swarming is recommended.

On pages 30 and 31 some selected recipes are given, then follow some uses of beeswax. In this connection it may be well to point out an error in the illustration of the top and bottom starter. The lower starter is shown to be perhaps an inch and a half wide. It should not be over $\frac{5}{8}$ of an inch. A wider starter will almost surely topple over when the bees cluster on it.

General instructions are given for the different seasons, which, with a brief paragraph on honey-plants, robbing, etc., completes the bulletin.

=====

A Cheap Cold-water Paint for Beehives

It is not often that we make an editorial mention of any article advertised in our columns; but when we believe that by so doing we can do a real favor to our subscribers we are glad to do so. But this is not because the advertiser requests it. Many of them, doubtless, would be willing to pay a good round price for an editorial space. But this is not for sale at any price.

In the case of the cold-water paint advertised by A. L. Rice, Adams, N. Y., we feel like saying a favorable word. A few days ago one of our subscribers complained bitterly, saying that this "powderpaint" was not "good," and that we ought to take it out of our advertising columns. As we had seen quite a number of favorable reports concerning it we wrote our correspondent to that effect, and in the mean time sent a copy of our letter to Mr. Rice, the manufacturer. In reply he sent us a large number of letters from his files that he had recently received, speaking in the highest terms of his cold-water paint—how, in some cases, it had outlasted lead-and-oil paint, how that it had been used for several years, and was still looking bright. The fact that these testimonials were unsolicited, and all of them

autograph letters from the writers themselves from all parts of the United States, leads us to believe that our correspondent who made the complaint either must have extraordinary conditions or did not use it right. As it was, Mr. Rice sent him an equal quantity of pure linseed-oil paint, as he wants all of his customers to feel satisfied. But in spite of this our correspondent complained.

There are a good many beekeepers living in hot climates who feel that perhaps they cannot afford to use lead-and-oil paint. Some among them, like Dr. Miller, believe that the moisture in the hives cannot pass thru the walls when the hive is covered with an oil paint. It occurred to us that we might be doing our subscribers a real favor all over the country by telling them of a water paint that has none of the objections referred to by Dr. Miller.

There is nothing that will improve the value of a farm or residence like bright white fences and buildings; and if Mr. Rice has an article that is cheap and good, we feel like giving him a boost. We have carried his advertising for some time, and this is the first complaint we have ever had.

Years ago A. I. Root used on his old original American hives a sort of cement or sour-milk paint. As we remember, it gave good service, was cheaper than lead and oil, and the hives gave good service until he abandoned them in favor of the Langstroth dimensions; for in these days he was experimenting with different hives and frames, and after carefully testing out these hives he came back to the Langstroth.

Our Foreign Exchanges; What the Great War has Done to Beekeeping in Europe

If anything were needed to cause us to realize that things are out of joint in Europe it is the almost complete cessation of the bee-journals of Germany, Belgium, and France, which for so many years have graced our table. We find none here dated later than January, 1916.* *The British Bee Journal* (England) comes to us regularly as before. *The Irish Bee Guide* has been coming also. Several of the friends have asked us lately for the address of the "best German" or "best French" bee-journal; but in each instance we have felt that any journal we could refer to might be out of print by that time. The demoralization of the beekeeping fraternity of all Europe seems to be complete. If that continent

were to be compared to a strong colony of bees knocked over by accident it would give one a fair idea of the horrors now taking place in

"— thy cornfields green, and sunny vines,
O pleasant land of France!"

The thunder of cannon and the hiss of shell have silenced the peaceful hum of the bee, and, in many cases, the coo of the babe in its mother's arms.

As indicative of the state of things in France even a year ago, we quote the following from our valued exchange *L'Apiculteur* for March, 1915; but in doing so we do not wish to plead the cause of one side as against the other, for it is a battle of the giants—diamond cut diamond, and a lot of them at that.

"Wherever they have passed, the German armies have left nothing behind but ruins. The bees have not escaped the common fate. It even seems that, in the invaded regions, the apiaries have been destroyed systematically in conformity with orders from superiors."

The last copy we have had of that journal was dated November, 1915, and we fear it has at least temporarily suspended.

Even in Switzerland, a neutral country, the people feel the stamp of red Battle's foot. *L'Apiculteur* says, Jan. 1, 1916:

"What a sad New Year's Day! For nineteen centuries it has been sung from our churches, 'Peace on earth, good will to man;' and yet, oh bloody wrong! the Christian people of Europe have been massacring each other. The flower of these nations are cut down by hundreds of thousands; and, as if the slaughter did not go on fast enough, the Turks and pagans are called in to help. What opinion will these heathens form of Christianity when they see these things?"

The writer of the above was the celebrated Ulrich Gubler, whose death we noted last year with his picture.

More than a year has passed since the above extracts were written; and, sad as is their tone, the condition there has steadily grown worse till the bees seem to be left to their own resources while the entire nation has gone to war.

The bee-journal in question speaks of a former Paris manager of the A. I. Root Company's branch office in that city as serving as an officer in the front; and his wife lately wrote us of her experience in trying to carry on his business alone. Thomas Wm. Cowan, at the age of 70, is even reported as serving as a railroad guard. Truly the time has come when "nation shall rise against nation."

* Most of them suspended early last year.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



PROF. BALDWIN, I like your looks, p. 300. Come on in.

ADVICE is given, p. 301, to put the queen below the excluder when transferring. All right; but it needs watching unless a brood is put with the queen. I knew a man to lose his best queen by leaving her below an excluder with no brood. Two cold days came; the bees deserted the queen and left her to perish. The man was no greenhorn either, for I'd been keeping bees some 50 years.

THE water method of transferring, p. 302. "While the two hive-bodies are held in contact, very slowly lower the box hive into the water until the bees have been forced off the old combs." That will take some time; and won't it be pretty hard on the arms? Wouldn't it be just as well to put the hive in the dry tub, and then "very slowly" pour in water?

R. F. HOLTERMANN, you say, p. 310, "I clip the wings on both sides." I wonder why. It's less trouble to clip only one side, and it's handy to have a wing to catch the queen by. The only thing I can think of in favor of clipping both sides is that you can more surely distinguish the clipping when you get a fleeting glimpse of the queen, and I'm not sure of that. Please tell why. [Clipping a queen on both sides would make her more conspicuous, perhaps, but it would be rather difficult to pick her up when it is desired to transfer her to another colony. But after all, does not the one-side clipping make the queen conspicuous enough? She certainly cannot fly, and it is up to Holtermann to explain the reason why.—Ed.]

Now comes Penn G. Snyder, and says: "Sugar $2\frac{1}{2}$ + 1 water equals $3\frac{1}{2}$ bulk (your figure). Honey, $3\frac{1}{2}$ bulk, holds 1-5 water, or 2.8 sugar and .7 water. So your recipe, $2\frac{1}{2}$ sugar to 1 water will contain more water than the same bulk of honey." Your arithmetic is off color a bit, friend Snyder, in the present case; for if you add a pint of water to $2\frac{1}{2}$ pints of sugar you will find in your vessel, not $3\frac{1}{2}$, but somewhere about $2\frac{1}{2}$ pints. So in the present case $2\frac{1}{2}$ plus 1 equals $2\frac{1}{2}$. But if you say "weight" instead of "bulk" you've got me, and I acknowledge the corn.

"A pint's a pound the world around" is true of dry sugar and a good many other things, but not of honey nor of any mixture

of sugar and water. I took 8 parts (by bulk) of sugar, and as I added water to it, little by little, it gradually shrank in bulk—the more water added the less the mixture—until I had added one part water, and there were then 5 parts of the combined sugar and water. That was the limit of the shrinkage. After that each part of water added made one part more of the mixture.

WHEN I said I had found in sealed queen-cells grubs not half grown, it did not occur to me that I was butting my head against orthodox teachings. Now comes that heterodox chap, Arthur C. Miller, and says: "Don't you know that all the orthodox teaching is that the queen-grubs do receive and must receive a *constant* and abundant supply of the same rich food as is given to worker-grubs during their first three days?" Well, it's the bees that are heterodox, and neither of us Millers. I told only what I saw. Arthur C. goes on to say, "The fact is, the little sealed-up grub is as well or better off than her unsealed sister," and explains that it's the enzymes that keep the baby's mess from going stale, even if it gets nothing fresh for two or three days.

DR. N. E. MCINDOO, one of Dr. Phillips' fellow-conspirators at Washington, it will be remembered, not long ago gave as the result of his investigations that the smell-organs of the bee were to be found almost anywhere except in the antennæ, where we had been taught they were. He has not by any means given up his upsetting investigations. In his latest work, while saying that he has found some organs of smell in the antennæ, he ruthlessly shatters all our ideas about the delicate and discriminating taste of the bee by saying and proving—that it has *no taste at all*—only smell. It happened that, soon after reading his work, I saw a dog after a rabbit. The rabbit was not in sight, but the dog at a full trot was following the trail by the scent. The rabbit had gone over the ground at a lively gait; and if you or I had held our noses to the ground perfectly still, it is not likely we should have discovered any odor of the rabbit by the most careful sniffing; yet that dog kept track of it while on the run. Now, how much stronger is that dog's sense of smell than ours? Probably a hundred times as great. If so, is it at all impossible that the bee may go the dog a hundred better? So it doesn't look at all impossible that a bee may scent a basswood tree or a field of clover two miles or more away.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Some of us are treasuring those articles by Mr. Orel Hershiser on European and American foul brood, over against a day we hope may never come—another case of preparedness.

Brood-rearing seems to be coming on pretty well, tho probably not so fast as tho there had been fruit-bloom. There is a little sealed drone brood.

"Cut it out!" Mr. Scholl insists, page 223, March 15, referring to drone comb. It sounds a bit personal to some of us who realize that we may not have cut it out so closely as we ought, but we do know what excellent advice it is.

Most of the reports show bees thruout middle Tennessee to have wintered well, tho we have heard of some that starved out because of failure to feed in the fall. ("Lack of sense or cents?" queries our correspondent reporting it.)

"Feeding fourteen dollars' worth of sugar every three days, with rain between spells," as recorded by S. H. Burton, Feb. 15, page 153, is certainly persistence in the face of obstacles. Sticking-to-it is one of the qualities that make for ultimate success. Here's hoping Mr. Burton's bees more than repay him this year.

We lost one colony—queenless. Perhaps it served me right, for my last record of last fall says, "Did not see queen." Otherwise colonies were in fairly good condition, tho I was sorry to observe the last one or two combs to the north in many hives moldy—in some of them, very moldy. Why? And why the one to the north, I wonder? Super covers seemed looser than usual this spring, not sealed down so tight as other years. Perhaps we fed a little late.

Just to the end of one alighting-board I was puzzled, one day in the early spring, to find quite an accumulation of pollen balls. There were none around any other hive, or elsewhere by that hive. After watching a bit I saw a little bee with great generous loads of bright yellow pollen drop on that end of the board, and squeeze into the hive thru a tiny opening where the entrance-contractor, a trifle short, failed to

reach the end of the entrance. And as she squeezed in, the pollen was scraped off and dropped to the ground, wasted.

Please, everybody, hold your breath. It looks excitingly as tho we might have a stunningly good year, if something just doesn't go wrong. The weatherman was not considerate during fruit bloom—indeed, in our immediate neighborhood there was practically no fruit-bloom this spring, which you will admit was a grievous disappointment. Of course there are no orchards around here, anyway, but usually there is considerable bloom, all told, in the yards round about. But this year the peach-buds, which had been swelled since early February, were held back thru freezing weather till nearly April, whereupon the trees with a bit of a pout threw out leaves instead of blossoms. So, too, with the early plum. Then it rained almost constantly during the blossom time of the later plums, and there are no apple-trees around here. So we have had to feed part of our little yard to tide over till clover. Out in the country, where there are apple-orchards, things are decidedly better. "This bloom," writes one bee-keeper, speaking of apple, "laps over into crimson clover, which in turn laps over into white clover," which certainly sounds good to a city backlotter. But the prospects for white clover are fine, and we are willing to risk a little sugar in the hopes of being ready for it.

The Bee Larva.

Larva that lies so still,
Wonderful worm so white,
Guarded from ill of hunger or chill
In dusk like a mid-summer night,
How did you come to be?
How did you break the egg?
E'er yet we can see, has the mystery
Encircled a thorax and leg,
Groped for a brain and an eye,
Dreamed of a gossamer wing
And how it will fly when some early June
sky
Makes summer a marvelous thing?

Peacefully you lie curled,
Sheltered from struggle and strife,
Tho wings, when unfurled, become part of a
world
Of measureless labor and life.
Pray that some elf a choice brings
Of lying summer—long so,
Or wearing out wings doing fair, brave
things—
Which would you choose? I know!

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



With sugar selling at seven dollars and sixty-five cents per hundred pounds bee feed will cost heavily this year, and the bees are going to require a lot of feeding too. Sweet clover and alfalfa are in fine condition, dandelions are in bloom, and breeding is going along in fine shape. It ought to be easy to have all colonies in excellent shape; and if judgment is used much increase can be made at no expense of honey crop. All that the beekeeper needs now is enthusiasm, good judgment, and hard work to have the colonies in prime condition.

A few weeks ago it looked as if we should have a very early spring, and that there was great danger of the fruit bloom freezing; but it turned cold soon enough to hold back the fruit bloom. Apricots, cherries, and a few apples have suffered; but the great majority of the orchards are safe at this writing. Dandelions have been kept back by the cold weather, and look a little the worse for the freezes. We may not have so many of them this year. Bees that have had protection have wintered well in Idaho, and colonies with good queens and honey have come thru well in Colorado.

Prospects are favorable generally. The prospects are poor in the Arkansas Valley, according to reports I have received. Bees are not in good condition there, on account of the poor season last year. Several cars of bees are to be shipped out of the valley this year. The older irrigated sections are not the honey locations they used to be. Cultivation is too intensive, and sweet clover gets little chance to grow.

THE NATIONAL ASSOCIATION.

In letters that I received from members and non-members, while secretary of the National Association, the thought was expressed that the National ought to do something for the beekeeper. Instead of asking what shall I benefit if I join? it would be better to say, what will the association ask me to do if I join? If the beekeepers want anything it is up to them to get it. There has been too much waiting for the railroads, the legislatures, the government, the honey-buyers, the commission men, and the National Association to do something for the beekeepers. If the beekeepers want

anything individually or collectively they had better go after it. Let us not complain of these agencies. Let's quit expecting charity, and let's dig down and pay for what we want. And do not expect a dollar fee in any association to solve all our beekeeping troubles.

If the beekeepers expect the marketing problem solved it will have to be handled in a business way, and the building will have to be done from the bottom up. The producers who have the surplus must get together and work with the beekeepers who have no surplus, but are nevertheless vitally interested in seeing prices kept up. The beekeeper is just like any other individual. He will sacrifice future profit for present advantage, not so much because he does not look into the future as because he has the present to contend with. Members of associations will sell honey for cash at ten per cent below what could be secured by holding thirty days, and they will sell to competitors of their own associations. A little more capital would enable them to stick by the associations, and on the average they would do better and would be contributing to the life and success of the association.

The National Association has elected officers who will push the association along educational lines only, leaving the commercial interests to others. This, it is hoped, will limit the activities to lines that can be successfully pursued. We cannot lose sight of the fact that too much education cannot be carried on covering foul brood, wintering, and overstocking, and as much, if not more, is lost from overstocking than from the other two, speaking of the inter-mountain region.

It is a pleasure to see that such an amiable and enthusiastic man as Prof. Jager has been elected president of The National Beekeepers' Association, and Dr. Copenhaver, of Helena, Mont., as the new vice-president. Dr. Copenhaver was elected president of the Montana State Beekeepers' Association a year ago at the time of its organization. He is an efficient enthusiast, and will well represent the interests of the Northwest. My best wishes go to all the new officers of the National. Serving as an officer of that association will give one an opportunity to do a great deal of work that may be of much value to American beekeeping. The writer is glad to be relieved of the duties of secretary, as his work is such that the office could not be well carried on.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Clover apparently has wintered well. With abundance of moisture in ground prospects should be fair for a crop of honey. Markets are well cleaned up, so any crop obtained should move off readily.

How the war will affect prices is an uncertain proposition. Practically all food products are going up in price all the time, and honey should hold present prices at least, even if it does not go up in proportion with other staples.

At this date (April 10th) it is possible to form a fair idea as to how the bees in Ontario have wintered. I have received no reports from cellar winterers; but, judging from letters at hand, I think that outdoor bees have wintered well wherever colonies were very heavy with good stores last fall.

Owing to the unusually warm January, many colonies with young queens and lots of empty comb available, reared brood extensively, with the result that stores were used up fast and the vitality of the bees was used up as well. What little loss we had in our own yards can all be traced to that cause, and this winter has once more demonstrated that while the so-called "winter nest" does no harm in more southern localities, and may even be an advantage (alho I much doubt it) here in Ontario it is never a necessity and is often a decided disadvantage to a colony. Proof abundant along this line is furnished by the fact that every colony contracted and made practically solid last fall by feeding is in simply perfect condition this spring.

Good advice is given on page 263 as to how to clip a queen's wings. Women are proverbially more handy than men, and I wish Mrs. Allen would try clipping the queen's wings without even catching the queen at all. I am as clumsy as the ordinary man at least, yet in common with a number of others that I know, I annually clip nearly all my queens while on the combs, without catching them and leaving any odor that quite often causes balling even with the most careful management.

Get a pair of small curved surgical shears—buttonhole scissors may do for a lady, but the finger holes are too small for a man's fingers. Find the queen and rest one end of comb she is on, on edge of hive and so manipulate it that the queen is heading up-

ward—many Italian or Carniolan queens will often remain quiet on the comb. Gently and deftly slip the thin-pointed shears under the wings and *clip*—that is all there is to it. If at all nervous, practice on a few drones first and you will be surprised how easily the trick is done. How much you take of the wings is a secondary matter. I like to clip all wings off so that the queen is well marked for future finding. Nothing in the idea that a queen closely clipped is apt to be superseded.

March was unusually cold here in Ontario this year. During the first 24 days of the month we had a temperature of 14 degrees below zero. Our bees had no flight till the last three days of the month when conditions were ideal for the bees to have a perfect cleansing flight. After having not seen the north apiary of 250 colonies since last October, I took the train on April 5th and found they had wintered perfectly again. They were covered with snow from early February till March 24th, so is it any wonder I am quite strongly of the opinion that snow rarely hurts bees? Here in York Co. we had a heavy wet snow with wind from southeast that sent snow right into entrances of hives. Two days after it turned very cold, and remained that way for three weeks. I shoveled this wet snow away from the hives in three of the apiaries and left the other one as it was. Parties in Ontario wrote me after the storm in question saying that this snow if left would do harm as it was so wet that, when freezing came, entrances would be frozen and trouble caused. However, when I went to shovel the snow away from this one yard about the last of the month, I found them none the worse as every colony had a space around the entrance where snow had melted. In fact, the bees were better by being shut in, as, during the two weeks previous to the time they were opened, we had bright cold days and large numbers of the bees came out daily in the yards that had clear entrances. Such bees were of course lost in the snow. While the great majority of these bees were no doubt old and about ready to die anyway, the fact I wish to make clear was that under such extreme conditions snow did no harm. With warm weather following the snowstorm, so late as the month of March, then I would not want to leave snow over hives any length of time.

Mention is made on page 1040 of the plant called "Devil's paint-brush," or "orange hawkweed." Judging by what I have seen of this pest when we had an apiary near Brockville, Ont., I do not wonder that they have coupled the ordinary title of his Satanic majesty to this plant. Out there the soil is of a thin limestone formation with much of the land being left for pasture; in fact, much of it is good for nothing else. Well, this "paint-brush" is rapidly crowding out all other vegetation on hundreds of acres, and it is literally good for nothing, as stock will not touch it, and the bees seldom touch it at all—only a very few being noticed on bloom, and they were after pollen. If it yields honey in the locality mentioned by C. L. Williams, I am very much surprised.

As to clipping queens, page 90, Jan. 15, personally I either want both wings off at one side or else all wings quite closely cropped straight across. The reason? Just because such a queen is more conspicuous, and a single glance, even in a hurry, no matter where the queen is, will tell you that she is clipped. The old argument about clipping one wing first year, another the second, and so on, is out of date, because we do not want to keep queens that long if we can help it. In clipping this spring, if a young queen is found she will be clipped and the hive thus marked. Should I find the queen is already clipped, the colony is marked "old queen," and if things go as I desire during the season, an effort will be made to requeen that colony before fall. That's all the record I need of a queen's age.

"If you were starting an outyard of 100 colonies how close would you go to a neighbor who had about the same number of bees, and still expect him to be your neighbor?" This is the query asked in the *March Canadian Beekeeper*, and answered by J. A. McKinnon as follows: "If I were starting an outyard I should not want to have that number of colonies any closer than three miles. I think five miles would be better." There may be some exceptional cases to which the above advice might not apply; but in the main most of us will, from a common-sense standpoint, and a common-justice standpoint, most sincerely agree with Mr. McKinnon. Please note that he is considering himself primarily in so advising, and the other fellow simply as a secondary matter. But see here, friend McKinnon; I warn you that you are stepping on a number of people's toes pretty firmly by saying what you have. To the

best of my knowledge, I am not personally hit; but that may be solely because of selfish views; for I well know that, if I put a large apiary right up near another large apiary, I shall suffer just as much as the man already established. There is not now, nor do I expect there ever will be, a law on this continent defining just where a man may put an apiary; and so it is one thing to be thankful for in this matter under discussion that one cannot injure another without at same time suffering loss himself.

Undoubtedly sweet clover yields some honey; in fact, we secured some last year at our Markham yard. But, enthusiastic as I am on bee matters, I have not yet got where I can conscientiously recommend farmers to grow the plant, especially on strong rich clay soils where other hay is grown. Mr. Linton, of Aurora, Ont., gave an instructive paper on sweet-clover growing at one of our conventions, and he has unquestionably made a success of it. But his farm, I understand, is hilly, and soil rather light—in fact, not adapted to growing timothy and clover. He admitted, in the discussion that followed his paper, that growing timothy hay and sweet clover on the same farm would not work.

From an experience on our own place—at least the place we formerly owned—I can well understand the reason. Probably forty years ago my grandfather, who was an enthusiastic beekeeper, sowed a field of white sweet clover and allowed it to go to seed. Every time that field has been seeded to timothy or red clover since then, we have been reminded of the fact. The soil is a very strong clay loam with clay subsoil, and, no matter how well it has been looked after, some seed seems to survive and show up from year to year. Sweet clover is all right for hay; but mixed in with timothy it is worse than useless, as the timothy has to be left so long that, by the time it is ready to cut, the sweet clover is about as good as sticks so far as hay is concerned, and some of it is ripe, leaving seed in the ground.

Another matter that has made Ontario beekeepers slow to boom the plant for honey production is that the honey from this source is undoubtedly very much inferior to that from alsike or white clover. In some cases, especially in Kent and other western counties, well-known producers have told me that they wished there was not a stalk of it within their reach. This is no knock on sweet clover, for I believe it has a future on the farms, especially on light, hilly, or worn-out locations; but it is well to look at these questions from different view-points.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



DRAWN COMBS IN SECTIONS.

"As the season of 1915 was not the best for honey, I have many sections with combs in them left over from that year. What had I better do with these sections—cut out the combs and clean up the sections, melting the combs for wax, or would you use the whole thing for fire-kindlers as does a beekeeper near me?"

Well, now! that is ahead of any wastefulness I ever heard of except letting the larvæ of the wax-moth destroy the combs. Sections filled with combs are equal to money in the bank. Money is put in the bank for safe keeping, but more especially for the interest it will bring. If these sections of combs are given to the bees at the opening of the clover or basswood harvest, they are not only preserved and filled with honey, but they will give big interest by drawing the bees into the supers before they would otherwise enter them. The very first honey is thus secured from these sources at the very start, which practically insures a good yield to the very end.

I have had years of experience in this matter, and know that when the flow from either clover or basswood opens very suddenly, or, at least, becomes very profuse soon after it opens, neither starters nor full sheets of foundation can begin to compare with sections filled with comb. There is no time in which drawn combs can be used to such good effect as at the rush that comes at the opening of the basswood harvest.

Then these combs are of equal value in getting the bees started at work in the sections at the beginning of the clover harvest, at which time the commencement of the nectar flow is not such as it is with basswood. When honey comes in slowly, the bees have to be coaxed into the sections or else they are very slow in starting, and these sections of comb are the greatest "coaxers" in bee life of anything which can be used. When honey comes with a rush, there is no time for deliberation; the honey must go somewhere, and work will at once be commenced in the sections full of inviting combs.

Then drawn combs are ahead of foundation—at least so far as the amount of honey to be secured is concerned—at any stage of the flow. If we could have all sections filled with nice white combs there is no reason why we cannot get just as much comb honey as extracted. If I could have my choice I should be glad to have all the sections in the first super filled with drawn or partly

drawn combs. I have seen seasons in which I was satisfied that a super of partly drawn sections of comb to give a colony at first meant just one more super of finished honey. A colony given a super of combs would have those combs filled, and be started upon a second super of sections filled with foundation by the time a colony given a super filled with only foundation had barely made a start. Where only foundation is used in the first super put on, the bees are slow to make a start, seeming rather to store in the brood-combs below. If a bee emerges from a cell, and the queen doesn't stand ready to put in an egg, it is quite likely to be filled with honey. Give such a colony a super of sections filled with partly drawn combs, and the bees will store honey in these combs just about as readily as in the combs below—a long time before they will draw out foundation in the sections. Combs in the sections relieve the pressure upon the brood-nest. More brood is the result. Yes, and it starts the bees to storing above the brood-nest, and, having made a start, they are sure to continue it unless the flow of nectar nearly or quite stops altogether.

Considering the value of drawn combs, I do not try, to any great extent, to restrict the number of unfinished sections at the end of the season. Supers entirely filled with drawn combs are not only just the thing at the beginning of the white-honey flow, but they are equally good near the close, for I have many times given colonies supers half filled with drawn combs and half filled with foundation near the end of the basswood flow, in which the drawn combs were filled and nicely capped; and the foundation, altho in the center of the super, was left entirely untouched. If I had sufficient drawn combs I would use them exclusively during the white-honey season, at the beginning, middle, and end; and by giving the colonies, after the basswood season is ended, supers of sections filled with foundation at the beginning of the buckwheat flow, the bees will draw out thousands of them during that and the fall flow. This can be extracted, and the combs used the following season. The extracted dark honey may be used for feeding, or it may be sold to those who prefer dark honey. In uncapping, it is well to cut quite deeply, thus reducing the depth of the cells, as when combs are nearly completed and used over again they will not have the smooth new look of those just built, nor of those that were not more than half completed the previous season.

GENERAL CORRESPONDENCE

FREEING SUPERS OF BEES IN OUT-APIARIES

A Quick Plan that does not Require Shaking, Brushing, nor the Use of Bee-escapes

BY J. A. GREEN

One of the most important operations to the beekeeper under any circumstances, but more especially to the one who keeps his bees in out-apiaries, is getting the bees off the honey. The time-honored method of smoking and brushing is still followed by many, especially among producers of extracted honey. Comb honey is likely to be injured by this method, especially when honey is not coming in plentifully, or with some strains of bees which begin to uncap the honey as soon as the hive is disturbed. Most beekeepers now use the bee-escape, which has been one of the most useful inventions ever presented to the beekeeping world. Especially to the keeper of bees in out-apiaries has the bee-escape been invaluable. Except to the one who takes an extracting-outfit to the outyard and shakes or brushes the bees off the combs, the bee-escape has been all but indispensable.

The escape has its drawbacks at all times, particularly for use away from home. First there is the danger that it may become clogged with dead bees, fragments of comb or other refuse, so that the bees cannot leave the super. This may result in nothing worse than having the work to do over again, though I have known bees to be suffocated and honey injured in a super over such an escape. A board containing more than one escape is, of course, much less dangerous.

Then there is the danger of robbers getting into the super and carrying off or damaging the honey. There are few hives or supers which have been in use a number of years (some of mine are thirty years old) that are not liable to have openings or cracks when they are piled one on another. Danger from this source may be avoided to some extent by plastering over all suspicious places with mud after the escape is in place. But even this cannot be depended on long in Colorado, where the continued presence of bees in a hive is necessary to keep joints tight. If we place an escape under a super, being careful not to lift the cover or disturb the sealing, that cover will often begin to crack loose and warp as soon as the bees are out of the super, and in a

day or two there will be a crack thru which bees can enter.

One of the worst faults of the bee-escape method for out-apiary use is that two trips are often necessary to take off a lot of honey, as it usually requires from 24 to 48 hours to get all the bees out in this way. Another bad fault for the extracted-honey producer is that the honey above an escape-board becomes too cold to extract well soon after the bees have left it. In Colorado, with our cool nights and very thick honey, bee-escapes are not very practicable for honey to be extracted, unless the honey is to be warmed up after taking home. The wire-cloth escape-boards that have been recommended for this do not suffice to keep the honey warm here.

Lastly, there is the danger that thieves who have learned what a bee-escape is for may carry off the honey over escapes before the owner gets back to it.

I am going to tell you of a better plan than using bee-escapes; but first I want to recite a little ancient history. When John Reese first made public in *GLEANINGS*, some years ago, his invention of the bee-escape, it attracted little attention. I think it was a year or more afterward when, noticing that no further mention of it had been made, I wrote an article for *GLEANINGS*, calling the attention of beekeepers to the fact that they were overlooking an invention that I had found practical and valuable. A short time after this was published, I met, in Chicago, James Heddon, whom old-timers will remember as one of the brightest men who ever kept bees. Said he to me, "Green, you ought never to have written that article. Reese's description of his bee-escape fell perfectly flat. I don't suppose there were a dozen men in the United States who ever tried it, and none of them said anything about it. It is a big thing; but such things ought to be kept in the hands of the specialists, who can appreciate their value. You have stirred it up again, and it will likely come into common use, which will be bad for the professional."

I will not discuss now his position in regard to new ideas, which is not altogether

uncommon. I have always been ready to share anything I knew with any one it would help, though I have sometimes been slow in making public a thing that has not been thoroly tested or perfected.

His prediction in regard to my article was apparently correct, for it renewed interest in the bee-escapes. Various improvements were made, and the original inventor was soon lost sight of. I know of no work on bees that gives him credit for his important invention. A letter from him appeared in *GLEANINGS* a year or two ago, in which he gave a hint of a better method of getting bees off the combs than the bee-escape; but this hint, like the original description of the bee-escape, seems to have fallen on stony ground. So I am going to "do it again," and try to wake some of you up to an appreciation of the better way, for there is a better way, for many of you at least.

I keep all, or nearly all, of my bees in out-apiaries, producing both comb and extracted honey and hauling the honey home to extract. For the last three years the bee-escape with me has been a discarded implement, an antiquated device that is used only occasionally. I drive into an outyard with my auto truck, and in ten or fifteen minutes can begin loading into the truck supers of honey perfectly freed from bees, without shaking, brushing, or any previous preparation. I do this by using the carbolized-cloth method. This was frequently mentioned in the bee-journals several years ago, and appears to have had considerable vogue in England, tho if it has ever been used to any great extent in this country, we have never heard of it. Properly used, I find it one of the greatest time and labor savers for the beekeeper who runs out-apiaries.

Tear any ordinary cotton cloth into pieces a little larger each way than the top of the hive. To work to advantage you will need four or five of these, and will probably find more unnecessary. Put these into a two-quart Mason fruit-jar, which makes a good thing in which to keep them. Pour over them a ten-per-cent solution of carbolic acid, one part of pure acid to nine parts of water, just enough of the solution to keep them about as wet as they can be without dripping. Any surplus can be squeezed back into the jar. The exact proportions of acid and water are not very material, and some other proportions may be better under some circumstances; but this is what I have generally used and found satisfactory.

Go to the hive from which you wish to take honey. Remove the cover, lay the carbolized cloth over the frames, and replace the cover or throw something else over the

cloth to prevent drying and waste of material. This is all that is necessary, tho I find it advantageous in practice to use smoke in connection, puffing a good volume of it into the top of the super, to get the bees to running before the carbolized cloth is laid on. Go to another hive and repeat the operation. By the time you have four or five thus prepared, the first super should be ready to come off. Put the cloth from this hive on another, and take off super number two, using its cloth as before. This makes a continuous operation, taking off supers as fast as you can prepare the hives and handle the supers. If you have to spend much time in hunting for supers that are ready to come off, you will not need as many cloths, as it takes only a few minutes ordinarily for the combined smoke and odor to drive the bees down, and the cloths should not be left on longer than necessary. Too strong a solution or a cloth left on too long may taint the honey somewhat. The odor passes off soon when the combs are exposed to the air, so that it does no harm to comb honey. You must be very careful with extracted honey that you expect to extract soon. When extracted soon after removal from the hives I have sometimes noticed the carbolic flavor in the honey drained from the cappings. I never take off honey before it is sealed. Probably unsealed honey would more readily acquire a taint that might be permanent if the honey was not exposed to the air.

Use nothing but the best refined acid. I tried crude acid, thinking that the stronger flavor would be more effective. It was, but the disagreeable tarry odor remained on the combs much longer. Carbolic acid is very high now, on account of the war; but, even so, I think it pays well to use it. Keep your cloths away from the air as much as possible. Put them into the jar as soon as you are through using them. Add a little more solution; seal them up and they are ready for use the next time you want them.

The method works much better with comb-honey supers and shallow extracting-supers than on deeper ones, tho I have used it with many of Langstroth depth. If you have more than one super to remove from a hive it is better to take off the top one as soon as the bees are out of it, leaving the cloth for a short time on the one below. Do not loosen the super from the hive before the bees are out. The draft of air from the crevices thus made interferes with the action of the carbolized air from above.

The method does not work well when the bees are sluggish from cool weather. There is one great objection to the plan, and it is

this that has made me hesitate so long about saying anything about it. This is, that the knowledge of it puts a very effective tool into the hands of those who might be dishonestly inclined. A thief who understands his business could get away with a great deal of honey in a short time, and could re-

move the honey from the hives by night almost as well as by day. So if you use this plan, let me advise you to keep it strictly to yourself. Do not use it when visitors are around. The outfit needed is small. Keep it out of sight when not in use.
Grand Junction, Colo.

CARING FOR 1000 COLONIES OF BEES IN IMPERIAL VALLEY

BY JOSEPH GRAY

To see four carloads of honey piled up in one lot, the product of one 1000-colony bee-keeper, speaks well for the system here outlined. Here in the Imperial Valley our flora is chiefly alfalfa bloom. The desert and banks of the canal system yield less every year from the cottonwood, willows, wild hollyhock, greasewood, arrow-weed, etc. Bermuda grass, price of hay, the reluctance of ranchers to irrigate and harvest in July and August when the thermometer is 110 in the shade; the putting in of barley along old alfalfa pastures for barley hay in the spring; the changing of crops to cotton, milo maize, feterita, melons, canteloupes, all tend to cut down the long honey harvest for which this valley has been noted.

Eight apiaries of over 100 colonies each, stretching away over ten to twelve miles, means considerable figuring for simplicity of handling. Two men in a Ford or other small car can do all the work of the apiaries early in the season, weeding out the dead, caring for the combs, and equalizing stores. It does not pay here to buy sugar to feed. The feeding is all done by exchange of combs. Only one size of frame is used—the standard Langstroth. It matters little if it is plain or spaced, thick or thin top-bar, wide or narrow. The same applies to hives 8, 9, or 10 frame. All are in use in 1000 colonies. Later in the season two teams of two men each are needed, and a boss to follow the work, requeening, drawing honey, getting it hauled, cans and cases, besides the wax question. A market-wagon carries what is needed for the day. One man operates the yard while the lesser experienced man uncaps and extracts. The combs of honey are collected in a long five-foot box mounted on a skeleton wheelbarrow covered with four wet sacks. When it is run into the extracting-house the two men lift the box on two upturned supers and place an empty box of combs on the wheelbarrow. One of the easiest methods to handle cappings is a wet sack on the bottom of the uncapping-tank. The cappings after draining are lifted out bodily and carried to the solar extractor.

Many are the devices used to make each hive an open book. Fig. 1 shows a hive-cover with three columns—a “wanted” column on the left; spare column on the right; center column, queen. A little reflection will give you the positions. *Right* is abundance; *left* is want; *center* is queen life; a small blue nail driven into any of these positions gives the index to the colony. For instance, a nail is shown in Figure 1 at “watch.” The boss finds the notation “26-4, drone-layer,” hence the index at “watch.” Another may be indexed “Requeen.” This calls attention to a possible record—“26-4, queenless.” Again, the index at “Queen” may reveal, in date column, “26-4, saw queen XXX.” That gives the apiarist’s opinion of the queen as seen at that date. The list of terms covers nearly every phase of beework.

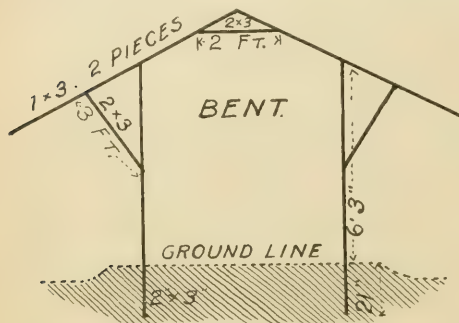
Wanted Bees	Queen	Spare Bees
Weak	Watch	Strong
Stores	Virgin	Stored
Combs	Requeen	Sections
Cell	Cell	Cell

Terms used in Apiary.
Stores to Spare
Short of Stores.
Seen Queen xxx xx x
Requeen
Drone Breeder.
4 of Honey
3 of Brood
O K
Sections
Given Brood
Given Eggs.
Super on or off.
Excluder on or off
Divide. Increase
Combs wanted.

A location here costs about \$25.00 per year rent. The bees must be put 100 feet from the fence line, and 300 feet from the roadway. One must consider the possibility of the bees getting irrigated as well as the land. As we have no rain, the roadway for the wheelbarrow will need to be irrigated for a barrow will not run in loose sand. We secured a location for one year, or may be two. A longer time is not advisable, because next year, instead of alfalfa we might see a mile of cantaloupes, or a couple of miles of corn or cotton; and, though it will cost you \$50.00 to move, it pays to shift

such an apiary. If as the editor suggests a new Imperial Valley opens out by way of Mexico, then the old-time alfalfa crops without Bermuda grass will prevail once more.

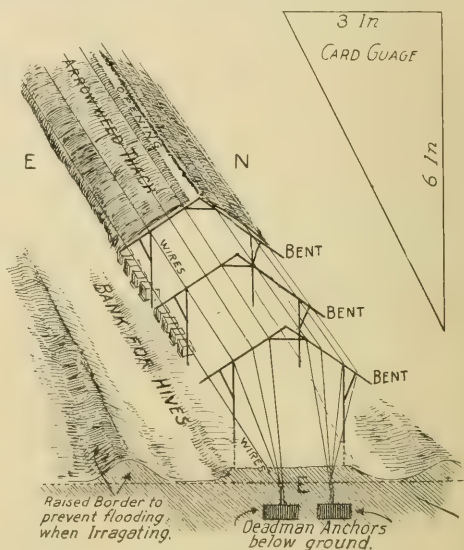
Having selected our site we proceed to plow and then "V" two banks on which to set the hives. These are run east and west, with the extracting-house at the east end.



Around the whole a border is plowed and "V'd" to keep out the water when the land is irrigated.

Next comes the building of the "ramada," the necessary shed or shelter. For this, 14 bents will be required, as shown in Fig. 2. Ramadas for stock are built with flat roofs; but for bees the roof should come low down at the sides with a six-inch streak of light down the center. With the ramada set east to west, and the west end covered in, no hive can get the full force of the sun. The bents are made of 2 x 3 lumber, and 1 x 3 lumber for the roof. To get an accurate

gauge to cut your lumber by, use a temporary card gauge. Mark with your square three inches along one side and six inches along the right angle. The result will be a measure that will answer for every cut.



Having our bents made and up we proceed to stretch six wires anchored to the deadmen. At each end arrow-weed is cut and the roof thatched. Light wires run along and are fastened to the under wires. This completes a very cool shade for so hot a country.

Heber, Cal.

A SUMMARY OF THE SEASON'S TRIPS TO OUT-APIARIES

BY J. W. SCHLENKER

I use the eight-frame dovetailed hive, and think it is best for comb-honey production. I make my first visit as soon as bees can fly well in the spring, and at this visit determine which colonies, if any, are short of stores. These I feed with full combs of honey saved over from last season for this purpose.

The next visit is made during fruit-bloom, at which time I remove paper coverings and clip all queens not previously clipped. Colonies showing so strong that they are likely to be crowded before May 1 are given another hive-body containing drawn combs, which are usually on hand at this time, from hives that have been fed, and from those that have died. These are set on top, and the queen given liberty to lay as much as she pleases.

About May 1 I make another visit, start-

ing to haul supers to the yard, and putting them on colonies showing sufficient strength. This is very important, because, if bees become crowded at this season, they will get the swarming fever and be much harder to handle.

After the honey begins to come in freely I aim to visit each yard once a week to put on supers, and determine whether any colonies contemplate swarming. This is done by tipping the hives back and blowing smoke over the bottoms of the frames. If any queen-cells are found these colonies are treated by shaking bees off all but the two outside frames, and filling the vacant space with frames of foundation, then returning supers and adding others as needed. From time to time I remove those that are filled. Colonies so treated rarely attempt to swarm again that season. The six brood-frames

thus taken may be used to build up weak colonies, if any are present, or to make increase. I usually pile them up on the new stand with contracted entrance about three stories high, and give a ripe queen-cell. This cell hatches before the young bees get to storing honey, and the young queen will destroy all other queen-cells, thereby eliminating all danger of swarming. The weather at this time of year is warm enough so that there is no danger of chilling brood, and young bees hatch fast enough, together with those few not shaken off, to care for the young larvæ. These three-story hives are usually so crowded with honey by fall that both the brood and queen will be found in the lower story. The upper stories can then be removed and used for feeding next spring.

Colonies that were given upper stories during fruit-bloom are divided as soon as super work gets well started. Most of the honey and capped brood will be found upstairs in these hives. I shake most of the bees off in front of the lower story, to which I have added two supers in place of the upper story; and after making sure that the queen is in the lower story I treat the upper story the same as other shaken frames.

When I think the honey-flow is half over I stop shaking bees, because those colonies that go half way through the honey-flow

without attempting to swarm can be kept in the supers by destroying queen-cells once a week if any appear. A great many colonies will not attempt to swarm at all if properly handled, and those are the ones that usually make the best yields. Great care must be taken along the latter part of the honey-flow in order to get as many sections completed as possible; and to avoid being caught with a lot of unfinished supers, this is entirely a matter of judgment of the beekeeper, and applied to the home yard as well as the outyard.

After the white-honey flow is over I remove the filled supers and give at least one empty super to each hive to catch any unexpected surplus. If there is a fall flow, supers are added as needed. There isn't often much swarming at this time; and as I do my requeening in the fall I can control what there is without trouble.

About Nov. 1 I remove all supers, and prepare bees for winter by contracting entrances to keep out mice, and by placing about a dozen sheets of newspaper over hives, and covering all with waterproof building-paper folded to shed water, tying with stout string to hold all in place. This has proven better than cellar wintering for me, to say nothing of the labor saved.

Ankeny, Iowa.

[Mr. Schlenker and his auto are shown on the cover of this number.—Ed.]

A NON-SWARMING SYSTEM THAT GETS RESULTS

BY J. M. BUCHANAN

For several years I have been testing out a plan for preventing swarming at outyards; and as I have had such uniform success with it I feel that I can recommend the plan to others who are situated in a similar location, or working under like conditions. Our main honey-flows are from locust and white and alsike clover, and usually begin about May 1, clover closely following the locust, and continuing about two months. There is generally a light aster flow in the fall. My bees are run principally for extracted honey, but with some slight modifications this plan will give good results in comb-honey yards.

Most of the spring work is done in the fall—that is, we see that the colonies breed up strong during September and October so as to go into winter with a large force of young bees. If there is not a flow sufficient to cause such breeding, the bees should be fed thin syrup or diluted honey every few days for a month or so. This is a very im-

portant factor in the next season's honey crop. A colony that will not breed up at all had better be broken up, and the combs and stores used elsewhere, as it will hardly pay to winter such a colony.

In October the excluders are removed, and all supers are taken off, except one, leaving the bees the run of two full-depth stories. (I am using both eight and ten frame hives.) There should be at least 25 pounds of sealed honey in the combs, some of which may be in both stories. They are now ready for winter.

No other protection is given, except that in a very cold winter the entrances are reduced with blocks. They should now be left entirely alone until April, when they are looked through hurriedly to see that all hives have stores and queens. No stimulative feeding or spreading of the brood is done.

A few days before the main flow begins, we go through the hives and put the queen



One of J. M. Buchanan's out-apiaries in winter, each colony being in a two-story hive.

and most of the unsealed brood into the lower story of the hive, with two or three empty combs. From three to five frames of the oldest brood are placed in the center of the upper story, over a queen-excluder, and the rest of the combs placed on each side of the brood. At this time we generally find fifteen to twenty frames fairly well filled with brood. Should we find eggs in queen-cells, most of the brood is placed in the upper story, and what brood is left in the lower story is alternated with empty combs or foundation, all queen-cells being removed.

A week or ten days later we look thru the upper stories and destroy any queen-cells that are found—no use to look for cells below the excluder, as there won't be any there if a good job was done when the queen was "put down." Some of the brood in the upper stories is used in nuclei for increase. At this time all colonies that are storing well are given another super of empty combs next to the excluder. We go over the yards about once a week and give supers to those in need, as it is important that they do not feel crowded.

The hives are tiered up, and the honey allowed to ripen well before it is removed. In taking off the honey, which is usually done about the end of the flow, bee-escapes

are used. Before these are put on we drive down most of the bees with a cloth wet with crude carbolic acid, which is laid over the frames for a minute or two. The extracting is done at the outyards, in a honey-house or in a tent, and the wet combs put back on the hives after sunset.

From two hundred colonies worked on this system we have had less than one per cent of swarming for two years, while our neighbors report fifty to a hundred per cent. I find the bees winter better, and build up faster and stronger in two stories than in one, and require much less attention in the spring, and they will get the honey if there is any to be had.

My bees are a good strain of Italians, mostly three-band, and only the poorest colonies are requeened each season. The rest supersede as they see fit. One factor that may have an important bearing on the swarming problem is the rearing of a large number of drones. I keep this down by allowing only worker comb in the brood-chambers, and using full sheets of foundation.

The illustration shows one of my out-apiaries in winter, with the bees in two-story hives. The trees in the picture are locust.

Franklin, Tenn.

IT TAKES NO MORE TRIPS TO OPERATE OUTYARDS FROM A CENTRAL EXTRACTING-PLANT

BY A. B. MANN

I believe in the central extracting-plant system, for I think it is by far the safest and most economical plan. Forget the portable or the separate plant at each yard, and put up a central extracting-plant, and install a friction-drive power extractor, and be happy. I care not whether you use team or auto truck, it pays just the same. Of course, an auto truck is much to be preferred; but you can get along with horses. Leave your wagon a few rods from the hives and out of the bees' line of flight, and keep all honey well covered after it is taken from the hives, and you are not liable to have trouble.

It takes no more trips to operate your outyard from a central plant than it does to extract at the yard; but it does take a few more supers. Load on the wagon your extra supers, as many as you will need, and go to your outyard toward evening. Take off the hives the full supers, and in their places put supers with empty combs or full sheets of foundation, as the case may be, on these the bee-escapes, and finally the supers of honey which you wish to take off. In the morning go back and get your honey. You will find the bees all out of the supers providing you use good, clean, double Porter escapes. (I have used them all, and the Porter double escape is the only one that has given entire satisfaction and cleared the supers of bees.) Load your supers, together with the escapes, and haul them home and extract where everything is handy. The work can be done in less time, and in a more satisfactory manner, than is possible at an outyard without too great a cost for equipment; and as soon as honey is extracted you are ready for another yard.

The interior of the honey-house you arrange to suit yourself. I use an eight-frame extractor and a tank 1 foot deep, 2 feet wide, and 6 feet long, standing on a lower level so honey runs from the extractor thru the strainer and into the tank, and then a hole cut in the floor, and boxed off underneath to hold the scale. So you see the honey goes directly from the extractor to the can, where it is weighed without any effort of mine, and then it is labeled and packed ready for shipment. If your time is worth anything, and you have enough bees to warrant it, by all means get a power extractor. It will pay you, as one man can accomplish as much as two with a small extractor turned by hand, and do a cleaner job of it.

I also believe that the foul-brood situation is more easily controlled by the use of a central plant than the portable or separate plant. Where there is American foul brood it is necessary that the extracting-room be absolutely bee-tight, thus preventing robbing, as it is an established fact that the honey from a diseased colony is contaminated, and thus it may easily be seen what disastrous results may follow carelessness and robbing. After the bees leave your honey-house, and even assuming they did not get any contaminated honey there, their robbing instinct has been stirred up and they will look around for more of the precious sweet; and if you have any weak colonies they are pretty apt to find it; and if you have foul brood you are sure to have weak colonies. By operating a central plant you are in better position to keep it up in shape, neat and tidy, and free from robbers. One thing I would suggest to those unfortunate enough to have American foul brood is to have a small extractor for extracting the honey from combs of diseased colonies only, and never place those combs over healthy colonies. If you extract them in the same extractor with the rest, even tho you keep the combs separate, more or less of the good combs are sure to become contaminated by coming in contact with the baskets of the extractor after the diseased combs have been extracted. If you are careless about handling the honey when you have American foul brood you can hardly expect to be able to eradicate the disease. Shake and work all you have a mind to, and be careless about extracting and putting combs back, and you will still have the disease. Better still is it to run every diseased colony for comb honey and take no chance with extracted. I believe you will all find that it is a great deal easier to get rid of the disease while running for comb honey than extracted, and that is one of the reasons why some succeed in stamping out the disease while others meet with flat failures.

With European foul brood we have a different proposition. The bacilli are found in the brood and bees themselves, also the queen, not in the honey, and therefore this disease requires different care and treatment; but in both cases the prevention of robbing is of paramount importance—yes, an absolute necessity. Therefore contract the entrances to weak colonies and do all in your power to prevent robbing.

Regarding prevention of swarming before

the queen has the brood-nest full, and before she begins to feel cramped for room—while the weather is favorable, and the bees are finding nectar enough to keep the queen laying—remove from the brood-chamber one or two combs, according to the strength of the colony, and pick those containing the most sealed brood, and, after cutting out all queen-cells, place them in the center of the super of empty combs and then set them back on the hive over an excluder. Care must be taken to see that the queen is not on the combs removed; and in place of the combs removed give frames with drawnout comb or full sheets of foundation, as the case may be. This gives the queen room for laying, and the brood in the upper story will soon hatch, and the bees will begin storing in them. In about eight or ten days go thru the super and remove queen-cells if any have been started; and if the queen has things pretty well filled up again, then repeat the operation. Give the queen plenty of room, also the bees an abundance of room for storing, but don't go

to extremes. Watch them and use judgment. Also give them plenty of ventilation, especially those in the sun and those in close places where the air has not a chance to circulate freely. The hive raised up on to $\frac{7}{8}$ -in. blocks in front, and a small entrance at top, suits me best. With the metal top and inner cover this can be accomplished easily. Slide the inner cover back a bee-space, and place two small blocks in front of it on the corners of the super for the outer cover to rest on. This will hold it up at the forward end, and give a bee-space, besides sheltering the opening from rain and sun; but you must weight the cover down or it may blow off. Placing $\frac{7}{8}$ -inch blocks under the four corners may be all right, but it does not suit me. I don't like to work around a hive that is open right in front of where I always stand when working with them. The scuffling around of my feet seems to irritate them. I prefer to have the rear of a hive on the bottom-board.

Fillmore Co., Minn.

FORTY YEARS OF COMB-HONEY PRODUCTION IN OUT-APIARIES

BY J. E. CRANE

I have been running out-apiaries for comb honey for nearly forty years, and most of this time I have had several such yards.

Much of one's success will depend on doing everything when it should be done. Supers must be filled with sections with starters in place. All hives should be put in readiness during cold weather, or at least before it is time to work with bees. As soon as warm weather comes so it is safe to open hives, every yard should be looked over, and all put in shape for brood-rearing. If one colony is found short of honey, honey should be given it—a solid comb from a hive that can spare it, or from those that have been kept over in our storerooms. Weak colonies should be shoved up on to three or four combs with a tight division-board; or, if none is at hand, a solid comb of honey next to them.

Next will come the clipping of the queen's wings. Apple-blossom time is the best for this work, as the fewest bees are then in the hive, and there is little danger from robbing at this time. Two men should go thru a yard of eighty or one hundred hives in a day, besides doing any other work necessary. Clipping queens is very necessary when running outyards for comb honey, as such yards are much more liable to swarm than when run for extracted honey. When

I first began I thought it necessary to hire a man for each yard during swarming time; but I have found it much more economical to clip our queens and look after all the yards myself.

Where many bees are kept in one place, some swarms are likely to issue during our absence; but with queens' wings clipped they will return to their own or some other hive—sometimes two or more to the same hive. When we find them we divide them, giving the bees to those hives most needing them, or use them for making new colonies with brood we have taken from other hives to discourage swarming.

A small building, if not absolutely necessary, is a great convenience for storing supers, combs, and honey, and we have at all our yards a building eight by ten, or usually ten by thirteen feet, for this purpose.

At the approach of clover bloom we give all colonies supers with sections filled with full sheets of thin foundation, or all colonies strong enough to begin work in them promptly. During the spring we do not aim to visit outyards more than once in two weeks; but with the blooming of white and alsike clover we may expect preparations for swarming, and each yard should be visited once in eight or nine days, not only to control swarming but to put on or take

off supers of honey. At each visit we aim to give each colony all the super room it will require until the next visit. We go over the yard by course, examine each hive, and usually remove every super from hives that have not swarmed, and open them that we may know their exact condition as to whether they are preparing to swarm or not. If we find larvæ in queen-cells it is time to begin by removing part or all of their brood, or, instead, their queen. There appear to be two main causes for bees swarming—old or failing queens, and a surplus of brood. If the queen is old it is better to remove her at once and cut out all sealed queen-cells, and, eight days later, again cut queen-cells, and, eight days later, give a virgin queen. It is better to discover such queens before any preparation is made for swarming, and remove them, giving a young queen in place of them; but we cannot always do this.

In regard to the removal of brood, it is much more effective when first preparations are made by a colony for swarming; for the longer it goes after they begin to prepare to swarm, the harder to get it out of their little heads, until sometimes they will swarm any way, even if you rob them of all their brood.

It is time more than wasted to try to prevent a colony that has an old queen from swarming by removing brood; for you may remove all of it and give dry combs in their place, and it is more than probable she will lay a few eggs in a patch as large as the palm of your hand, and queen-cells will be promptly started, and swarming results.

Bees as a rule work in supers much better when no preparation is being made for swarming, and we should forestall any desire on the part of the bees by giving plenty of super room and abundant ventilation as well as shade. There is doubtless a great difference in different strains of bees

as well as in seasons. Some years bees are much more given to swarming than in other years. Much will also depend on the skill of the apiarist. I believe I have had quite as good success by spending one day in eight to a yard, with one man to assist me, as when I employed a man for every yard. Taking off honey or supers at an outyard is a very simple matter since we have used bee-escape boards.

We have sometimes run one or two yards for extracted honey, but have thought the work quite as hard as when run for comb honey. Perhaps we did not understand how as well. It might seem like pretty hard work to lift supers and open 75 or more hives in a day, but we have seemed to get along fairly well.

For four or five outyards we have got along with one horse and an express wagon, altho an auto truck would be better in some ways. One experienced active beeman with a good assistant can take care of a yard of eighty to one hundred colonies in a day, leaving the other six or seven days for other yards.

There is, doubtless, a difference of opinion as to whether we should work with bees on Sunday; but I don't believe it pays when it can be avoided. There is a lot of sound sense in the statement by that old Hebrew preacher that "They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run and not be weary, they shall walk and not faint." How many times during the swarming season have I felt completely worn out by Saturday night, when the rest of the following day, with church services, and mingling with pleasant people, with all thought of bees removed from me, I have gone to my work on Monday morning with strength renewed and the whole world smiling for me.

Middlebury, Vt.

A HUNDRED COLONIES TO THE APIARY

BY D. L. WOODWARD

It is some years since my father, A. E. Woodward, and I started our first out-apiary. It is also some years since my father retired from the bee business on account of ill health, and, like some other veteran beekeepers, took up his winter residence in Bradentown, Florida.

Since then I have been conducting the business alone. I aim to keep about three hundred colonies, which are temporarily located in two outyards and the home yard. Before the time of the automobile I extract-

ed my honey for several years at the outyards, but decided that it was less work to move the honey home to extract than it was to do it at the outyards. Another thing to take into consideration is the fact that we can be at home more, and can enjoy a warm dinner in place of a cold lunch at noon.

I still have a honey-house at one outyard which I would not know how to dispense with as it is very convenient to have a place to store supplies, etc.; then, too, we always have a shelter from storms.

I have been using an auto in my business for the past five years, and would not be without one again. Five years ago I purchased a large seven-passenger car, second-hand, and converted it into a truck for hauling my bees and honey to and from the outyards, and for marketing my honey. I found it unsatisfactory, as it was not geared right for a truck, and was too expensive to operate for my light running about to outyards, etc., so I sold it and bought a smaller car for my outyard work and marketing, and went back to the old reliable horse for my heavy hauling.

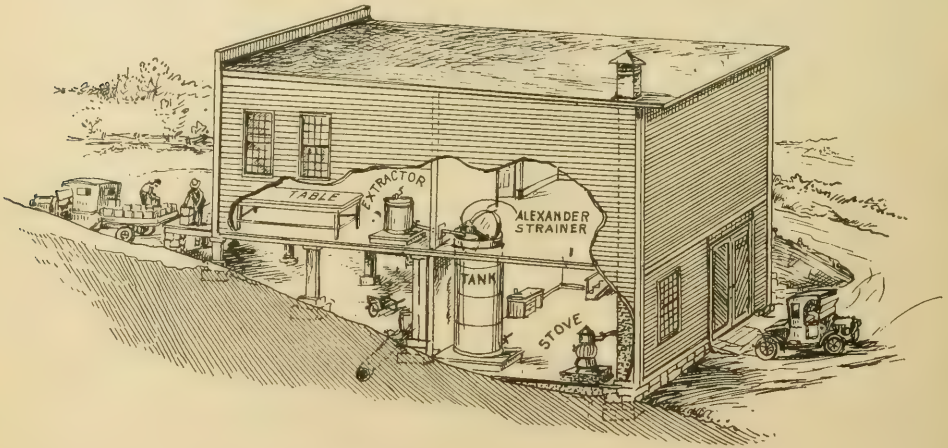
This year I have ordered a Stewart truck of 1500 pounds capacity, and will again try my luck, but this time with a car built for the business. Touring cars are not built for trucks, and any one who invests his money in a second-hand car of this type expecting to do trucking with it might as well save his money. I shall keep my small car for the light work the same as before.

if the combs are well capped over; if not, it may take a longer time.

All honey is hauled home from the outyards and tiered up in the honey-house before a comb is extracted. The honey-house is built on a slight sidehill. The upper end of the house is raised about three feet, and supported by piers, while the other end is two stories high. The roof is nearly flat, and covered with a composition roofing which draws the sun's rays and makes the temperature very warm in the honey-house.

In front we have a bridge level with the honey-house door, and about the height of the auto platform from the ground. This makes it very handy for unloading and loading.

In the room below we have a stove, wax-press, scales, etc., and a 3000-pound-capacity honey-tank. This tank was made for us by Sears, Roebuck & Co., at the small cost of \$7.10. It is made of galvanized iron,



At the outyards as well as the home yard we always leave the honey on the hive until the close of the flow, raising the supers as they become filled and two-thirds capped, and placing the super of empty combs underneath; then when we are ready to start extracting we can make a business of it. Going thru the yard and sorting out the filled combs once a week or so, as some recommend, takes too much time for outyards.

When the honey is ready to come off we go to the yard; and while one man raises the super the other inserts the escape underneath. If there is more than one super to come off we generally place the escape under one at a time. In this way we go thru the whole yard at one time. In twenty-four hours the bees will have left the super

and is three feet in diameter and six feet high. It extends about six inches thru the ceiling into the room above. The extractor is arranged near by, and the honey is run by gravity thru a galvanized tube into an Alexander strainer hung over the tank.

I have read that galvanized iron would darken white honey, but have yet to discover that it does so. We use several smaller tanks, all made of galvanized iron, and a bottling outfit made of the same material. Of course we never leave the honey in the large tank for any length of time unless it is the last extracting, which is sometimes left for several days. Ordinarily as soon as the tank is full we stop extracting for half a day or long enough to draw off the honey from the tank. Understand, this honey is all well ripened on the hive, and can be put

up for market at once with safety. All combs that are not capped are sorted out, and kept until last, to be extracted by themselves. This unripe honey is put into our smaller galvanized tanks and left to ripen.

My bees are all moved home from the outyards in the fall, and wintered in our house cellar. In the spring they are all set out in the home yard, where they remain until about the middle of May, when two hundred or thereabout are moved to the outyards. All weak or diseased colonies are left at the home yard, where they can be watched and taken care of much better than at the outyard.

About July 20 or just as the buckwheat is coming into bloom, we again move all our bees, including the home yard, to the mountains for the buckwheat flow, there being no buckwheat to speak of raised in the valleys below.

It is a beautiful sight to stand upon some peak in the Helderberg Mountains where you can look from three to eight miles in every direction upon hundreds of acres of buckwheat in full bloom. I have inspected fields of buckwheat located less than a mile from my 300 colonies, and found only now and then a bee, showing that, when there is plenty of pasture, they do not go far from home in pursuit of nectar.

Last season I had one freak colony that would not work on buckwheat, but stored all their honey from late sweet clover. When we took this honey off we were surprised to see all nicely capped combs of white honey with occasionally a cell of buckwheat near the outside. This colony was given all empty combs after being moved to the buckwheat location, just the same as the rest.

In locating an out-apiary there are several things to take into consideration. There should be a stream or pond of water near by—the closer the better, as it will save the bees valuable time. I try to keep my bees busy every minute that it is possible for them to work, by locating them close to the flora and water. A southern exposure and protection from high winds is advisable on the north and west if possible; and the yard should be located where the bees will not be a nuisance to neighbors who may be work-

ing on land adjacent to the apiary. I have always tried to locate my outyards near a house, as I do not think the bees are as likely to be molested as when they are off in some out-of-the-way place. Then, too, it is very nice if you can locate this apiary close to the highway; but this can seldom be done.

One of my yards is located within twenty yards of the highway, but is separated from it by a hedge of brush ten feet high, and the road is five or six feet below the ground where the bees stand. On the north there is a bank twenty feet high, and on the west there is a wood; on the south a creek with large trees on either side. Taking everything into consideration, it is an ideal spot for an outyard.

I believe that most beekeepers set their hives too close together, and in too systematic rows. It all looks very pretty, but it causes a lot of drifting and mixing, and I fully believe that it is the main reason why it is so difficult to exterminate bee diseases, mainly foul brood. On account of lack of space I set my bees in rows and in pairs generally; and for several years I have noticed that, where a colony had foul brood, and was not treated at once, generally the next colony to it on one side or both would develop the disease some time during the season. Last season I had one colony that was slightly affected with foul brood, on the end of the last row in my home yard. I thought they would clean up of their own accord when the honey-flow started, so I did not treat them until I found that the five colonies next in the row were infected. I have found that the surest way to exterminate foul brood is to shake the bees as soon as the disease is discovered.

About one hundred colonies is all that can be successfully operated in one location in this locality. I am acquainted with beekeepers who insist on overstocking their locality by keeping several hundred colonies in one apiary, and consequently get a very small average per colony; whereas if they would divide them into several yards of about one hundred each they would realize a handsome profit for the extra work that would be required to manipulate them.

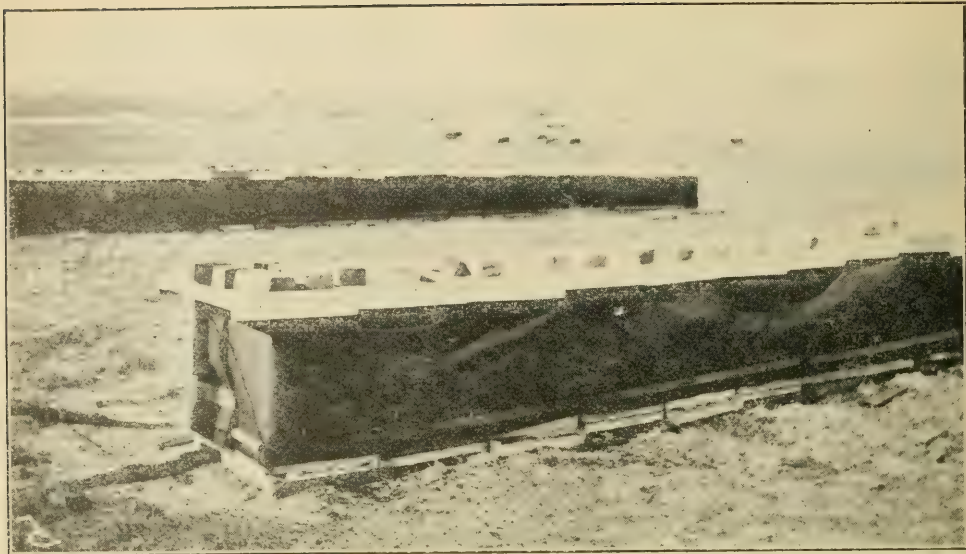
Clarksville, N. Y.

PREVENTING SWARMING BY PUTTING BROOD ABOVE AN EXCLUDER

BY DANIEL DANIELSEN

I run five outyards for extracted honey, and I prevent swarming by raising brood over queen-excluders and leaving the queen below on empty combs as often as she gets

the hive full of brood. Of course the bees raise cells above the excluders; but that seems to make no difference so far as swarming is concerned.



One of Daniel Danielson's outyards showing protection of roofing paper.

Sometimes I make an entrance in the back part between the stories for ventilation, and they thus get a laying queen in the upper story. If so, I put the old queen on the new stand and put the young queen down, and that ends all swarming.

I don't see how any one can run outyards for comb honey unless he visits and overhauls them at least once a week. To keep bees from swarming, plenty of room is needed in the brood-nest and super, and that is a hard problem in comb honey.

Brush, Col.

PRODUCING COMB HONEY IN OUT-APIARIES

Disease Broke up the Celebrated Let-alone System

BY ALLEN LATHAM

The statement on page 218, that "Allen Latham holds the imaginary cup for operating bees on the let-alone plan" needs a correction in tense. Put *held* for *holds* and the truth will be better observed. Before foul brood struck this locality this plan of keeping bees was carried on for several years with marked success. One year in particular I produced a honey crop which netted me over \$60 per day for time actually on the job. This was done with bees having a strong admixture of black blood. European foul brood came, and at once difficulties piled up. Italians will swarm where the blacks will work contentedly; but the blacks succumb to the disease. It was absolutely essential that yellow blood be put into the place of the black, but this was done at great expense in the economy of the let-alone system.

Formerly only about one-fifth of swarming took place, and one could well afford to run bees on the plan, allowing in advance

a loss of one-fifth the crop. With the Italians the swarming jumped right up to ninety or more per cent. To prevent this the apiaries had to be visited several times prior to and during the honey-flow. Even with much added labor the crop was cut down and the cost of operation tremendously run up.

It begins to look here as if the disease had spent its force. If I can again go on with black blood I may regain the lost imaginary cup. In the mean time I am at work upon the problem of succeeding with yellow stock. If I ever solve the problem I will announce the fact.

The foregoing paragraphs concern the production of chunk and strained honey. During the last two years, seeing that I had to make visits to my out-apiaries frequently, I thought I would try section-honey production. My efforts have been fairly successful, and I will give some suggestions as to swarm control. There is nothing new in

my methods, but a résumé may be of service to those interested in this subject.

One can control swarming to the extent of having no swarms run away by cell-cutting and wing-clipping. This means a weekly visit and a general overhauling of practically every colony in the apiary. There is a lot of labor in this, but it is labor well paid for if one can find no better way. The chief objection, aside from the labor, to this method is that colonies which get the swarming fever badly will not finish up sections. They will continue to store honey, but will not do a finished job. This can be offset in part by placing their partly filled supers upon a colony which is doing finished work, and giving the unruly colony fresh supers. Careful manipulation in a reasonably good season will result in a fair percentage of completed sections, but one has to look out or he will have too large a percentage of cull sections.

Another plan which gives much better results is to prevent the swarming fever from starting in. Now don't get excited! I have no infallible plan. Early in the season, before the colonies are too crowded, cage queen or remove her. Substitute a ripe queen-cell, either immediately in a protecting-cage, or, three days later, unprotected. Colonies thus treated will sometimes later acquire the swarming fever, but most of them will not; and if the operation is well timed the crop is but little affected thru the temporary absence of a queen.

If one does not care to carry out this plan in wholesale (and who does not find

queens that he cannot bring himself to displace?) then put the plan into operation only with such colonies as start cells. It will work pretty well here; but once in a while the young queen will lead out a rousing swarm just as soon as she has laid a few eggs.

If the last-mentioned plan is adopted let the apiarist forestall a lot of the queen-displacing by requeening the previous season. It has been the experience of the writer that queens reared in September rarely lead out swarms the following season. (I use this expression, "lead out swarms," entirely aware that the queen leads only in the sense that she is a controlling influence.) For many years I was able to state that I had never had a swarm issue which was headed by a September queen. But this last season broke down all precedents. September queens, young queens, old queens which had already been out once, etc., were embroiled in a fever of swarming that rivaled the war-fever in Europe.

Whatever plan one follows, therefore, in the production of section honey in outapiaries, he is sure to encounter difficulties. He cannot, as in the production of extracted honey, give unlimited room, for if he does he will get an unmarketable crop. But he must give room or he will not get any crop. Aside from the problem of the swarming he has this other great problem, and in his wise discretion in the matter of supplying supers rests his success in getting a good profitable crop to market.

Norwichtown, Ct.

DON'T TRY TO MANAGE OUTYARDS WITHOUT AN AUTOMOBILE

BY R. F. WIXON

I am producing comb honey in outyards as a main crop, and extracted honey more as a by-product. Comb honey appeals to me because it has a ready sale. Until three years ago I did not use an extractor, and thus did not see the possibilities open to the producer of good ripe extracted honey.

Last spring 56 colonies of bees, spring count, were increased to 110 colonies during the season. These were in three yards—two outyards and one home yard of about 25 colonies. This season (1916) I wish to increase the total number to winter to 200. These colonies will be away from home, and will be run exclusively for fancy comb honey. The ten-frame standard hive, factory-built, with the $4\frac{1}{4} \times 1\frac{7}{8}$ -inch sections, split on three sides (Hand method) makes a hive and super combination that gives excellent satisfaction and good results. As I have

used the split sections only one season it is not quite fair to say whether they are exactly ideal or not; but so far as last season was concerned they gave good satisfaction and stood a large amount of rough handling, both before and after being filled by the bees.

As soon as it is safe to open hives in the spring, the colonies are examined to determine if there are enough stores, and to learn the exact strength, so as to be prepared to deal with each colony wisely. When settled weather comes, sometimes between April 20 and May 1, the queens are clipped, and the smallest frame of brood in the brood-nest is transferred so it comes between two larger frames, or, in other words, one of the outside frames of brood becomes an inside one. The second week the same operation is repeated; but on the following

or third week an empty comb is placed in the center of the brood-nest, as this happens now in more settled weather; and as the cluster of bees is larger, a little spreading does not seem to hurt the prosperity of the colony. This method of spreading is used until the hives become full of brood, and then some combs are raised into an upper story over an excluder. All colonies are given upper stories as soon as their strength will permit, even if their brood has not reached the number of ten frames (I sometimes have colonies make 30 to 40 pounds of extracted honey before June 1). As the main flow from clover does not come on until the first week in June, or later, I find that this extra room keeps the colonies from getting the swarming fever, and I am also the gainer, often by many pounds of extracted honey that perhaps otherwise would never have been gathered. The colonies in the yard that have an upper story are shaken on clean empty combs or foundation with one frame of capped brood, and the proper amount of super room given at once. Two or three supers, one fitted with four to eight baits, are given to each shaken colony. By this method one has a large amount of brood on hand. This is saved by placing it over weak colonies till it is capped; then it can be used for increase, or left on the weak hives until the combs are filled with honey.

In the Altay yard there were 23 hives of brood from 35 colonies. Six weak hives cared for the brood. In ten days these hives became so strong that extra entrances had to be provided in order to prevent the bees from hanging on the outside of the hive. During the white-honey flow the combs were filled with honey, and also an extra set for each six hives. As soon as the brood had all hatched, these bees were shaken from the combs into one hive-body, and four to eight supers given to each hive. I cannot remember exactly, but I know one made 336 sections before the buckwheat flow, and the other five filled between four and six supers each.

Colonies worked in this way produce

fancy comb, the finest that can be made. They do not even offer to swarm as long as plenty of super room is given. Every colony is inspected once a week to determine if honey is fit to remove, if plenty of extra room is ahead of bees, and last, but not least, to see if any colony contracts the swarming impulse. If one should, the cells are broken down, room and more ventilation provided; and by the following week, if they still insist on swarming (as they did in 1915), all brood is removed, which in most cases cures.

The empty supers are placed under the partly filled ones at the beginning of the flow, and on top of all the supers as the flow nears the end. Bee-escapes are used exclusively, paying well for the extra trip required.

Increase is made by the Alexander plan in some seasons; but the three-frame nuclei, made and transferred by auto to another yard, have the advantage in that all the bees stay.

Hardly any attempt is made at queen-rearing. Good queens can be bought in large lots at reasonable rates from experienced men. If one gives his colonies extra good care, there is not much time left to rear queens. Men who have reared queens for years can send out better queens than persons of only a few years' experience. Colonies are requeened every two years unless queens prove poor.

Colonies are numbered, and a record of each colony kept. The records help to control the swarming. They give the age of queens, but do not give yield of honey per colony except where colonies prove poor and the queens require changing. The sales for the season give the average of honey per colony.

The crop last season was, in round figures, 5000 sections of comb and 3000 pounds of extracted honey from 56 hives, spring count, and an increase to 110 colonies. I believe that these bees could have been made to average an even 200 lbs. per colony if I had known then what I know now.

Don't try to manage outyards without an automobile.

Dundee, N. Y.

OUT-APIARIES IN RHODE ISLAND

BY ARTHUR C. MILLER

Out-apiaries are not a joy to the "bee fusser," nor are they a royal road to wealth for him. "Let-alone" systems must be used for best results, all things considered.

All of my apiaries are now "out-apiaries," and are from eight to twenty-five

miles from home. The nearest thing to a home yard is the one eight miles away, and it is where I raise my queens and do most of my experimenting. I have three yards all together totaling about two hundred colonies, and I have an oversight of two

other yards of a score of colonies each; and during any spare time I have I act as bee inspector for the state. Those are my side lines, my vocation being banking. So far I have had sufficient time to eat, sleep, and be merry.

Early in my attempts at "wholesome neglect" of the bees I ran into the swarming trouble, and it overshadowed all the others. I tried all the orthodox remedies—found most of them "patent medicines" in which the cure was worse than the disease, so "threw physic to the dogs," and worked out a treatment of my own. Now I have almost forgotten how a swarm looks or sounds, and my eyesight remains good and my ear keen.

The formula is a simple one, and can be compounded by any beekeeper who will take the necessary pains. The ingredients are good combs with room enough for them, young queens, ample entrance, and a shaded hive.

To elucidate: *Good combs.* Do you know what they are? In my yards they are all built on foundation in wired frames, and every inch of them is available for brood—except when the workers get there first and put in pollen or honey; but there are no stretched or distorted cells, and drone comb only in the lower half of the frame next to the entrance. (Entrance is at long side of the hive.)

There are ten combs in each hive, and hives all have 14¾ inches clear, inside width. Combs are kept away from the sides of the hive by three good bee-spaces, and that insures brood in outer surfaces of outer combs when the queen needs the room. The half-comb of drone at the outside means a minimum number of drones commensurate with wants of the bees and the labor of the beekeeper. The bees are bound to have some drones; and if you fail to allow them room for raising them they will cut down worker-cells and put in drone anywhere that suits their fancy. Personally I dislike their fancies, so I allow them the minimum space for the purpose and put it where I want it, and that is at the front where the queen occupies it late and leaves it early. Drones may not be a direct cause of the swarming fever; in fact, they may be only a symptom (choose for yourself), but certainly there is more swarming where there is an excess of drones, and less where there are few; wherefore I choose to assume that they are more or less direct disturbers of the peace, and permit as few as the bees will acquiesce in.

Room enough! Hump! If you don't know what that is was had better give up the business and leave your room for a

better man. But perhaps you are a well-meaning youngster, and anxious to know, so I'll tell you that room enough means a little more than the hive manufacturers have usually deemed necessary (I almost said *thought* necessary). It means enough room so that you can offset the combs from the hive sides sufficiently for one layer of bees to be on the comb, one layer on the hive side, and another layer promenading between. The promenaders keep the others from becoming too somnolent.

Young queens—not so young as to be frivolous, but young enough to be vigorous hustlers. Mine are raised and introduced in August and September. Why? Well, 'tis a rather long story, and it took me a whole lot longer to find out that queens reared and used then were best suited for the ends sought; but they seem to be so. In some other localities some other time might be better, but not here. Such queens, in the first place, put the colonies in bang-up shape for winter, and follow it up by presenting me with a fine score for the honey-flow, and make wholly good by sticking to business till after the flow and the season for all swarming foolishness is past. My queens are not only all of the same age, but daughters of the same mother, so all colonies are very closely alike, and a look at one or two tells the story of all. If any one in the yard is out of condition, entrance appearances tell it. With such queens there is no spring stimulating, no transposing of brood, no fussing nonsense of any kind. Annual requeening *pays*. Be the reasons what they may, I find I cannot omit the young-queen factor from my reckoning.

Ample entrance. For me, I find an entrance one inch high by eighteen long is ample. You see it is six inches longer than the standard entrance to a ten-frame hive, and also six inches nearer to the most remote part of the hive. Use has proved it good.

Shade. Something to prevent the sun from frying the brood—double covers, telescope covers, trees, any old thing to keep the sun off during the hottest part of the day—that is, during the honey-flow. At other seasons I prefer a goodly amount of hotness.

The conditions under which the foregoing combination has made good are these: The ordinary northeastern United States climate, so far as heat and wind and "weather" are concerned, but tempered, and often abused, by cool to cold nights, often with fog and sometimes high winds. The main flow comes in July; but sometimes we get three or even four "surplus flows," as locust

the last of May, sumac early to mid-July; clethra, buttonbush, and clematis the last of July and early August, and goldenrod in August and September. This makes a noise like a bee paradise, but 'tisn't. We have a little something coming in much of the time, except when a drouth butts in now and then, and we almost never have a "flood" of honey. Bees seldom get such "a load on" that they have to be helped into the hive. They are more temperate hereabout.

The other problems are transportation of supplies and crop, and getting to and from the yards. Trolley express goes right by one yard, while freights plus farm teams cover the others. Trolley or train carries me to one yard and train and auto to the others. All yards are run for both comb and extracted honey.

Comb honey is cased at the yard, and generally shipped in by auto. Extracted honey is put into cans, and goes to town by the farm team. A little money, a little honey, and a little jollity is all that is needed.

A room in some one of the buildings at each place serves all purposes of preparation, extracting, etc.

Supers are put on when it suits my convenience. To be sure, the bees now and then gnaw the foundation if there chances to be a dearth before the flow starts; but what's the odds when they make it all good again as soon as there is something coming in?

Most of the honey is removed by use of escapes. When I cannot go down the night

before, I have some one at each of the more remote yards whom I can usually get to do it for me.

And it all sounds so simple and so easy! Well, it is; but every step is planned out ahead, every kind of short cut is used, and no operation is followed which can be omitted. In other words, the whole thing is a machine with every wheel doing its duty in its turn, and not a useless cog in it.

Pardon me. I must hedge a little. I do do quite a bit of experimenting, but it is all in attempts to find other short cuts.

Did you ask which factor I considered most important in swarm prevention? All of them. The young queen comes first, perhaps; combs second, and the other things bunched. You see those good combs properly spaced give the queen all needed room, and the supers on ahead of time give the bees loafing room before the flow and storage room during it. If honey happens to pour in before any comb is ready in the sections, and brood combs are pretty well filled by the queen, the bees just pop it into every empty cell having only eggs (I have never seen them submerge larvæ). This is removed and ripened during the night, and then goes above (where combs by then are growing fast), for they are pretty careful not to hamper the work of that young queen, and the temporary honey bath never harms the eggs.

The secret of success in handling outapiaries here or anywhere is preparation, material and mental. If you cannot work out the second, never mind the first.

Providence, R. I.

CONTROL BUT DO NOT PREVENT SWARMS IN OUTYARDS

Hive Swarms on Starters and Put Full Sheets of Foundation in the Supers

PY F. W. LESSER

It is easy enough to prevent swarming in outyards run for comb honey if we do not consider the work or loss of honey involved; but after trying all sorts of non-swarmling schemes for years I have come to the conclusion that it pays much better to direct the swarming impulse into proper channels than to try to prevent it entirely.

The dequeening or caging method will prevent swarming, but it requires a lot of expert labor, and the results in storing are far from satisfactory.

The plan of allowing the bees to fill an upper story full of honey, and, when the flow is well on, shaking the bees on to it and putting boxes on is not to be recommended, as Italian bees will not carry up the honey satisfactorily, and what is car-

ried up will be of poor quality. Also, this plan requires good judgment as to the proper time to put on the boxes, and makes a lot of work at a critical time.

Any plan which requires an extra set of brood-combs is bad, as it increases the investment, risk of disease, and makes a lot of work to keep the combs the rest of the year. I know of no greater nuisance to the comb-honey man than a lot of empty combs to keep from moth, disease, robbers, mice, etc., for eight or ten months of the year when not needed under the sections.

After trying about everything the plan I like best is "shook" swarming, which I learned in Colorado fifteen years ago. I believe it is the best plan to use wherever there is foul brood. Those Colorado fellows

not only know how to produce fine comb honey, but they know how to produce it at the lowest possible cost. That prince of comb-honey producers, Mr. M. A. Gill, his wife, and one helper have managed as many as 1000 colonies, producing 70,000 lbs. of comb honey in one season by the shook-swarm method, and the plan works as well here as there.

Every one knows the plan, but I will give a few details which we have found good. Clip the queens early. Equalize the brood in fruit-bloom to keep early swarming down. Put supers with a few baits in them on before the white flow begins. Better be ten days ahead of time than one day late. Put a shade-board on all colonies in the sun, and raise the hive up an inch from the bottom-board a little before the swarming season. Make a date, before swarming begins, for visiting each yard once a week to examine all colonies for cells. If in a hurry, we tip the hive back and look between the frames for cells. We may miss one occasionally; but as the queens are clipped they will not get away before the next trip, when we shall probably discover the cells.

We have tried to discourage swarming by destroying cells; but as a rule we have found that it does not pay at this regular swarming period. When the bees of a colony once get eggs and larvæ in queen-cells they have gone too far to change their mind in a hurry, and the best thing to do is to satisfy their desire. The queen has eased up on egg-production; the workers have begun to secrete an abundance of wax; there is honey in the fields, and everything is as nature intended for the making of a new home. Don't spoil all this preparation by compelling them to forget it by cutting cells, caging queens, dequeening, etc. Take advantage of this natural impulse and let them get the fever out of their system by working it out, which they will do if given an empty brood-chamber. We might as well try to get eggs from a sitting hen as to try to get good work from bees with the swarming fever. Give them an empty home, and they will work like beavers.

Don't make the mistake of hiving on combs or full sheets of foundation if you desire to get as much fancy comb honey as possible. With starters in the frames and full sheets in the sections, the inducement to store is practically all in the sections. With full sheets of foundation in the frames the inducement is largely in the brood-chamber. With combs in the frames the inducement is about all in the brood-chamber, with a consequent crowding of the queen, and poor work in the sections.

When eggs and larvæ are found in queen-

cells, shake on starters on the old stand, and set the old hive at one side or corner of the new. Don't shake too many bees at the first shake. In two or three days contract the swarm to the capacity of six L. frames, and put on the sections from the old colony. In six or seven days after shaking, shake one-half or one-third of the remaining bees from the old hive in front of the swarm, and move the old hive to another part of the yard to build up for winter. There will be no after-swarming, as the first queen out will destroy all remaining cells. This colony will usually build up in fine shape for winter, and, having a young queen, will be one of the best the next spring. Before the fall flow, the swarm's brood-nest should be increased to eight L. frames capacity to allow them to build up for winter, and to prevent late swarming which might happen if left on six frames. But use full sheets of foundation in the frames at this time.

There will not be much drone comb built in the six frames of starters if the queen is good and plenty of room is given in the boxes. A little sorting and patching in the fall or the next spring will make everything all right. Combs built from starters are much superior to many of the combs built from full sheets of foundation, as there is no sagging of cells, and brood will be reared up to the top-bar, which is quite an item in comb-honey production.

As European foul brood is now pretty well scattered, most of us must keep Italians; and as they dislike to leave the brood-chamber we must plan to force them into the supers by using small hives and hiving on a contracted brood-chamber.

I know beekeepers who have had fair success in producing comb honey with black bees; but after they Italianized, they made miserable failures by the same methods. The cause is large brood-chambers and hiving in full-sized hives on full sheets of foundation in the frames.

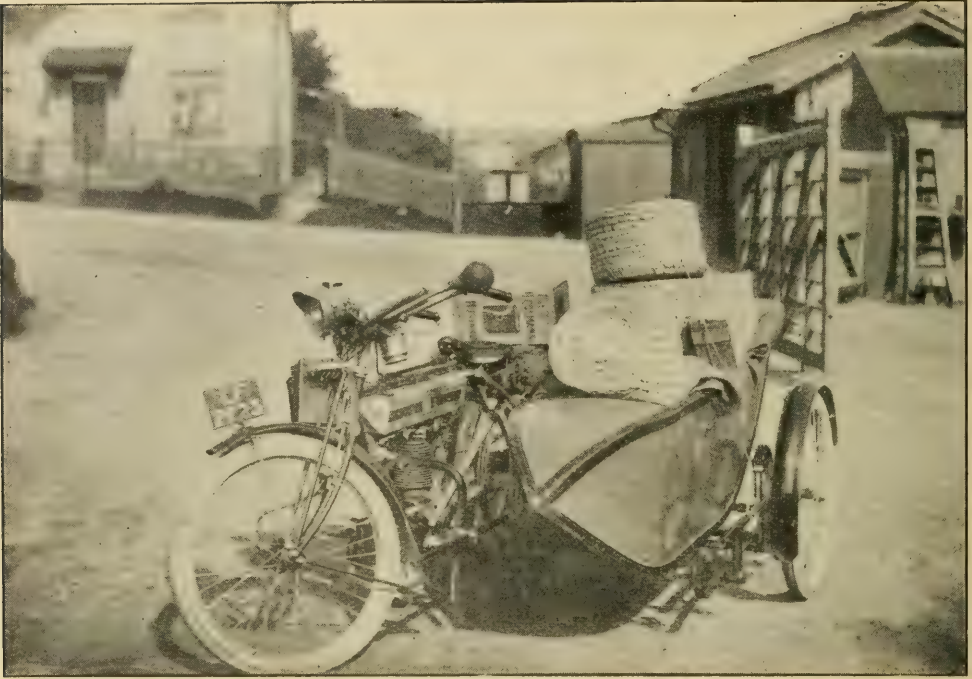
DOES THE CENTRAL EXTRACTING-PLANT SPREAD FOUL BROOD?

From my experience I would say that the danger is great. There is always more or less drip on the wagon or auto, and robbers are always around when loading or unloading; and with ordinary help the combs from different yards are sure to get mixed.

Some of the worst scrapes I have been in with horses have been in hauling full combs home to extract.

We have also used a tent for extracting; but hereafter we want a bee-tight house at each yard.

East Syracuse, N. Y.



Motor cycle for outyard work.

THE MOTOR CYCLE FOR THE BEE BUSINESS

BY A. H. BOWEN.

The picture shows the machine I have been running this summer for the conveyance of bees, hives, and supplies to and from the out-apiaries.

The machine is a single-cylinder, 1913, 3½ h.-p. Triumph, to which is attached a

roomy Canoelet side car. It is fitted with a free engine-clutch and three-speed gear, which obviates the necessity of stopping the engine in traffic, and gives greater power on hills.

Four eight-frame colonies in traveling crates can be hauled at one trip in the side car, or 150 lbs. of honey in 28-lb. tins may be easily carried.

Fragile articles such as skeps of bees with young tender combs, or crates of full sections can be conveyed with very little jar; and, indeed, the machine is now indispensable to out-apiary management. By the speedometer the machine has been run 5500 miles this season, and it was driven every day thru the finest weather. The greater part of this



Part of a Cotswold apiary with a natural windbreak.

milage was done with the side car loaded.

I have had no punctures, and only two stoppages worth recording—once with a choked petrol pipe, and once by a faulty plug. Economically driven at speeds averaging 12 to 16 miles an hour, the expenditure for fuel and wear and tear are reduced to a minimum. The total cost of maintenance, including two new tires and a belt was a fraction over half a shilling per mile, or 14 cents.

A Canoelet side car offers several advantages over the bare side-carrier I have often seen illustrated. No tying on of goods is necessary; and when starting out on a bee-tour one can load up with small articles

such as smoker, carbolic cloth, knives, some frames of foundation, a super or two, a roll of sections, and a package of booklets and pamphlets to be distributed at each stopping-place. All can be easily found when wanted, and there is no risk of the articles being shaken off when traveling along a rough country road. Outfits of this kind are very popular in England among people who can not afford to own a car. The first expense and cost of maintenance is not so heavy; and with care it will give long and lasting service. It is particularly well suited to the needs of the present-day business beekeeper, and my own machine has stood the test far better than I first anticipated.

Cheltenham, England.

SOME EXPERIENCES WITH A MOTORCYCLE

BY RAY C. WILCOX

In the spring of 1914 I was engaged as helper by a large apiarist of Tompkins County, some 35 miles from my home, where I had an apiary of 30 colonies. The bees were in good condition, and it was my desire to work them to the best of my ability, both for extracted honey and increase. Owing to the fact that the railroad connections between my home town and that of my employer were indirect, and that my bees were nearly two miles from the railroad station, I realized that the expense of working my bees would be high in time and car fare.

I had been interested in motor cycles, and, after some consideration, I decided that one was just what was needed to work my little apiary to the best advantage and give me maximum amount of time for my employer. I finally bought a twin-cylinder machine of a popular make. It was a second-hand affair, but was in fine order, and, as motor cycles go, I believe I got my money's worth. Indeed, while I had the machine the more important parts of the motor never troubled me.

But from the first I was disappointed with my purchase. Even after learning to handle the motor, which I did with comparative ease, I found that it greatly preferred smooth roads. To be sure, one could ride over rough roads, but it was a most shaky experience, and very hard on all concerned—except the road, perhaps. I have often wondered at the durability of motor cycles. On the whole these machines are certainly well made to stand up under the usage they receive. However, I soon found that there is a knack about picking one's way; and after six months' experience I could ride

with comparative comfort and at fair speed over roads which, at first, would have well nigh unseated me.

But while rough roads were unpleasant they were passed over with ease as compared with muddy ones. Indeed, it was the helplessness of the machine in the mud that was most disappointing, for I found it almost impossible to get my heavy machine over wet slippery roads. It not unfrequently happened that a rain came up while I was at my apiary with the motor, and the road would become so slippery as to be practically impassable for a motor cycle. That meant loss of time, or returning to work by rail, which meant that I must make the next visit to the beeyard in the same way. The same conditions often necessitated a trip to my yard by train. Of course these were not the usual conditions, but they were often enough so to be very annoying. At the close of the season I figured that I had saved \$19.00 in car fare, and possibly as much more in time, at a cost of \$16.00 maintenance on machine, to say nothing of depreciation, which, when figured in, left me considerably behind on my investment. Some of the wear and tear, however, was due to pleasure riding, for which the machine was used a good deal.

During the season of 1915 I lived some 10 miles from my apiary. The motor cycle proved a great help during the whole summer, but was especially convenient because of the excessive swarming, so common last season. Muddy roads were often bothersome as in the previous season, but the distance was easily within driving range for my horse, altho the time required was fully four times that needed to make a trip with

the machine. It was often necessary to use the horse any way, because I had to take quite a load. In fact, the incapacity of the motor cycle to carry a load is really the greatest objection to the machine for the beekeeper's use. If one has only a single conveyance it is important that he be able to haul considerable load.

Motor cycles with side car attached have been recommended; but even then the capacity is small and the outfit is impracticable for bad roads. Besides, unless in a level country it needs a very high-powered and expensive machine to handle a side car. In a hilly country a one-speed motor cycle with two cylinders cannot manage a side car

efficiently except under the most favorable conditions. To be sure, two and three speed high-powered machines may be had, but the price rivals that of a Ford automobile, while their efficiency is scarcely to be compared with such a staunch little car as the Ford.

As a pleasure machine the motor cycle stands in a class by itself, and, tho it may scarcely sound businesslike, I am free to say that I do not begrudge what mine has cost me for pleasure. As an investment I am sure it has not paid; but if one can afford one as a luxury it will often be found convenient for making quick trips.

West Danby, N. Y.

ONE WHO SUCCEEDS WITH A HOME YARD NOT ALWAYS SUCCESSFUL WITH OUTYARDS

BY F. P. QUINBY

My experience in California, Nevada, and Illinois, has taught me that the following points cannot be ignored if the maximum results are desired from outyards.

One of the first items to be considered in establishing an out-apiary is this: Have you knowledge of the conditions that surround the locality? and do you realize that your outyard may differ to a wide extent from your home yard, and as such require different management? The foregoing is but one of a large number of questions that might be put to the "small" beekeeper who is desirous of establishing an outyard, but it is an item of vital importance.

The same rule applies to the management of outyards as to the man who, having been successful in business on a small scale, desires to branch out into a larger field, in which undertaking he often meets with failure on account of the lack of training or inability to cope with larger situations.

One of the more difficult problems which the beginner must solve after he has established an outyard or two is how to control the swarming with as few visits to the outyard as possible. The system which I have followed for the past four years in Illinois is as follows: I introduce a strong young laying queen into each colony just before the fall flow begins, on account of which my colonies go into winter quarters well provided for; i. e., with a young queen, young bees, plenty of good stores, and the fall honey is all removed from the hives.

As soon as I find there is plenty of bloom I confine the colonies, which are wintered in two-story chaff hives, down to the first story, taking out all the surplus honey by lifting

the brood-nest, which is by this time well started, and is usually in the top story, and putting it into the lower part of the hive. I put only those combs below that have brood or honey in them, always placing a card of honey next to the brood-nest proper. The rest of the hive is filled with empty combs, and the frames are well covered up. An ideal condition is thus created; i. e., I have a young vigorous queen, a brood-nest that is not clogged up with candied honey or old pollen, and the season is advanced so that, with the pollen plentiful, and enough new honey coming in, the queen will do her best with the force she has at this time, and good results cannot help being obtained.

I utilize the rest of the honey which is found in the hives as follows: I place one of the combs over the cluster after a piece as large as the size of my hand has been uncapped with the knife, and every other day repeat this until the comb is used up, at which time I start another comb in the same manner. By so doing, my old honey is entirely consumed by the time of the main flow, and has been turned into brood, which is the result most desired by beekeepers at this time of the year. I am well aware that a good many beekeepers find their bees are without stores a good while before the flow begins, but I consider it poor management. With a good young queen at the head of a colony at the opening of the season, keeping the colony compact and warm, and using the old honey as stated above, it is not long before I can start with my second brood-nest. I consider this the secret of swarm control and strong colonies.

When I have accomplished the results as outlined, it is necessary to make only one visit every ten days to my outyards, and all I do at such time until the flow is on is to shift the brood-nest, which is at the bottom, to the top, and *vice versa*. As soon as the flow is well started I put my queen-excluders on the colonies running for extracted honey, the same being placed between the two brood-nests, making sure that the queen is below. I also change the brood-nests, putting all brood about to hatch into the lower hives, so as to give the queen room to lay more, in this way keeping the colony in shape for the sweet-clover flow.

I put all my first supers for comb honey

with top and bottom starters between the two brood-nests of the same colony—this with the intention of keeping on for forty-eight hours. In this way my sections are started nicely, and they are not discolored. At the end of the time stated I remove the upper brood-nest with brood; also two frames from below. I also add my second comb-honey supers at this time, for the reason that my colonies are invariably strong enough for this to be done. I now make only one visit during the week to my outyards, and this for the purpose of putting on supers and shipping honey until the close of the season.

Western Springs, Ill.

AN AUTO TRAILER FOR THE OUT-APIARY

BY J. P. MOORE

Unlike most out-apiaries, mine answers three purposes. First, I form about 200 nuclei from it; second, it takes care of my new swarms at home, and prevents my home yard from being overstocked; third, it produces a good supply of honey each year. For many years I have dreaded the long nine-mile trip to this out-apiary, not only for the ride in a heavy farm wagon, but the danger which I underwent with two powerful horses which I drove; for had a bee stung either, I should have been kicked to death or dragged by this high-spirited team if I had been caught unawares. No horse, no matter how gentle, likes to have bees alight on his back and sink their sting into him. From four to six of these trips had to be made each year for forming nuclei, and two for bringing home the honey, and each trip was like a beating for me.

In 1914 I purchased a Hupmobile touring-car, and, with the aid of the running-gear of an old carriage, I fashioned an auto-trailer, the sides and bottom of which were slatted to allow the circulation of

plenty of air. An iron Y brace was then put in place of the shafts, which in turn was clamped to the axle of the machine, and I was then ready for my experiment. My son-in-law and assistant, Mr. J. E. Jordan, acted as brakeman on the trailer to save the brakes on the machine in descending long grades. One blast from the auto horn was the signal to apply brakes, and two to release them. The result was, we were able to drive down between the rows of hives without the slightest fear from stings to our steel horse, and the trip was made in less than half the time than with the team.

Our trip is now a pleasure, and very few hills are so steep that I have to resort to low, even with 48 nuclei in the trailer. Bees stand the trip better, and I have experienced no broken-down combs. The automobile has now really replaced the horse in my business. Mr. Jordan sometimes makes the trip up to introduce queens on his Indian motor cycle which has a side car attached. The side car, being pretty large, will accommodate all kinds of supplies and tools.

Morgan, Ky.

VISITING AN OUT-APIARY ONLY FOUR TIMES A YEAR

BY S. G. CROCKER, JR.

One year I ran an outyard with but four visits, and did not have a swarm. The first and greatest swarm preventive is young queens, so all my hives were requeened late in the fall. Another great help is drawn combs, of which I had a good supply the year referred to.

I am not going to give a set rule by which we can have an outyard run on four

visits with no swarming. In the first place, the kind of season, the weather, the honey-flow, and the breeding of queens from non-swarming colonies, control swarming to a great extent. If we have a rainy spell at the beginning of the honey-flow when the sun does come out I have noticed swarming will invariably follow.

I think we all agree that the greatest

cause of swarming is a congested brood-chamber. When the queen lays in every available cell she feels she has done all she can for the colony, and goes out to start a new colony. That is why putting on comb-supers will not prevent swarming. I have had colonies in the spring whose queen had 16 Hoffman frames of brood and eggs in all stages of development. Now, how could we expect to hold a queen like that in an eight-frame hive? We must expand the brood-chamber to keep down swarming, either by removing the capped brood, shake swarming, or putting capped brood in an upper story away from the brood-nest.

To describe my visits: I made my first trip when my bees at home showed they needed super room by the clustering-out of the strongest colonies. On visiting the out-yard I equalized my colonies by exchanging capped brood for eggs or empty comb, leaving the bees on the capped brood, and using a little smoke. I have no trouble from fighting. I then got a full-depth body for each colony, and, removing five empty combs, exchanged them with five combs of

capped brood, putting the capped brood in the upper story and giving the queen access to both stories; then put a shallow super on top as a kind of safety-valve in case the flow proves heavy before the next visit.

On the second visit I followed the same plan as at first, raising capped brood and honey, and inserting empty body or bodies below, according to needs of each individual colony. One can find the queens at this time, put them on new combs in the lower body, and keep them there with queen-excluders; but I have never thought it paid for time required to find the queens.

The third visit I made about ten days after the spring flow was over, removing all honey on each hive, putting all brood in one or two bodies according to the amount, and hauled honey home to extract.

The fourth visit was after the fall flow, which is not heavy in this locality, and rarely affords any surplus. If a few colonies had surplus I removed it and put it on colonies short of stores; if not, I fed sugar. I then reduced the entrances, and packed the bees for winter.

Baltimore, Md.

WITH SHEEP AND BEES AND HONEY BOB SURELY MADE SOME MONEY

BY REV. J. M. LEWIS

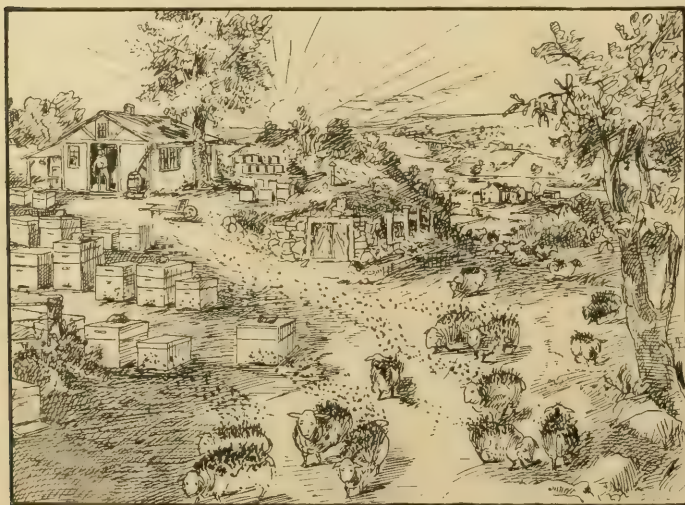
Bob was a shepherd who pastured twenty sheep. They browsed around the meadow where the grass was long and deep; but when the leaves had fallen and November winds were chill, out in the open meadow they could not get their fill. So Bob he kindly put them in a well-protected shed, with hay enough to feed them in the mow

up overhead. But the seed kept sifting down, and it lodged amidst their wool, and there it safely stayed till the April moon was full.

And then went those muttons out in the rain, you know, and in less than twenty days the seed began to grow; and it grew and kept on growing like the bean in fairy song, till the grass up-on their backs was at least two inches long. And Bob, he expected that, later in the year, the fragrant clover blossoms would certainly appear.

The moral of this tale is clear to every eye—that by judicious management (if a person cares to try), he may with little trouble when the days are warm and sunny, have the sheep supply the nectar for the bees to make the honey.

North Westport, Mass.



Heads of Grain from Different Fields



THE BACK-LOT BUZZER.

A pound of honey is better than a pound of beef-steak. Sammy Cucumber says he doesn't care if it is. Sam's a vegetarian.

The Winter in Montana.

I went into the winter with eleven colonies, two of which were second swarms, and none too strong. They were all wintered out of doors; and as we had the severest winter ever known in this section of the state—not the coldest weather, but the longest continuous spell of cold weather, getting as low as 40 degrees—I was very anxious about the bees, as my experience covers only a few years.

About the 10th of February the weather broke, and the bees came out for their first flight since before Christmas. Every colony showed signs of life and considerable activity, and all but one were strong. Of this cold spell I may say that, for three weeks or more, the temperature was away below zero every night, and for much of the time did not get above zero during the twenty-four hours. Another thing about this spell of weather, which I feared might have a bad effect upon the bees, was that, after about ten days of extreme cold, the weather moderated one day, and the next day the temperature was 53 above zero in the afternoon, and within twelve hours thereafter it again fell to 20 below, and the extreme cold continued for another ten days or more; but all of this severe weather seems to have had little effect upon the bees.

I winter in double hives, patterned after

the Root hive—one of them is a Root; but the outer casing is considerably larger than the Root double hive—large enough for four inches of filling around the brood-nest. In this space I put three thicknesses of thick cellular box material next to the outer walls and bottom of the outer case, and the rest of the space is filled with chopped alfalfa, and over the top about six inches of leaves.

Last summer was a poor honey season here, and my bees were wintered mostly upon syrup. I gave them all that they would store. The system is not what might be called "beekeeping for profit," but I keep the bees mainly for the pleasure they afford, and, incidentally, to have my own honey.

The experiences of the past winter have convinced me that a bee-cellar is not a necessity in this climate, however it may be within the arctic circle or some other cold section of the earth.

Rudolf von Tobel.

Lewistown, Mont., March 10.

Massachusetts Society of Beekeepers

The fifth of the six regular meetings of the years 1915 and 1916 was held in the Williams room in the Ford Building, Boston, Saturday evening, March 18. Miss Dorothy Q. Wright, of Lowell, was the speaker. Being a practical beekeeper she was very interesting, and held the attention of the large gathering for about two hours. She had a display at an exhibition in Lowell recently. There were miniature hives in an apple-orchard, dolls with hoods of net tending them. The trees were made of bayberry shrubs with the berries painted red. Above was a sign "An Apiary," and a large number of visitors stepped up to ask her what sort of animal an apiary was.

Miss Wright believes that all beekeepers should raise their own queens, as queens sent by mail are more or less injured.

Henry W. Britton.

Stoughton, Mass., March 20.

An Inexpensive Way to Bind Gleanings

The following is the most satisfactory way of binding copies of Gleanings that I have yet found: Punch four holes with a leather-punch, one pair near each end and about $\frac{1}{4}$ -inch from the back edge. Then get two pieces of tough cardboard for corners and punch corresponding holes in them. The holes should all be punched with the same pattern. Strong cord is used to tie them together. I put six issues in a volume, as this is the handiest size. The word Gleanings and the date of the first and last issues are written on the corner, and the volume is complete. These volumes can be opened and handled as easily as a book, and any article can be quickly referred to.

Jennings, Kan.

M. L. Dodson.

Taxes on Bees in Wisconsin

Can bees be taxed by law in Wisconsin?
If so, what is a colony valued at?

Cylon, Wis., Jan. 18. Almond Kohn.

[This was referred to Mr. France, who replies:]

Bees are assessed and taxed in Wisconsin (five colonies exempt). The valuation is left with each assessor, which varies from nothing in many cases to \$5.00 per colony; but generally \$1.00 to \$2.50 is the valuation given.

I suppose if true law were called to bear in the case, bees by law would be called wild by nature. The beekeeper owns said wild insects by virtue of good management, liable, however, to "skip" any warm day. But the hives and attending fixtures are personal property, subject to assessment and taxes. Some of my apiaries were never taxed, and others have been part of the time, depending on who the assessor is.

N. E. France.

Platteville, Wis., March 13.

The Drouth Broken in New Zealand at Last.

The Acting Secretary of the National Beekeepers' Association of New Zealand, Mr. R. W. Brickell, writes under date of March 15, 1916, that "New Zealand has just passed thru the worst honey season it is possible to imagine. Scores of our largest beekeepers, men whose bees are their sole means of livelihood, are in many instances just at the present moment, when the honey-flow should be closing, still feeding their bees. Hundreds of square miles of our best clover country have been in drouth since May, 1914; but I heard this morning that the drouth broke on Sunday last."

Amherst, Mass.

Burton N. Gates.

Who Has Built up a Parcel-post Honey Business?

If any one has made a success of selling extracted honey by parcel post I wish he would tell about it. I should like to know how he got his customers; what class of people they were; what he got for the honey. It looks as if I shall have to take up that line of business, and I should like to know how others have succeeded.

John A. Van Deman.

Benzonia, Mich., March 4.

A Correction.

On page 228, March 15, in my description of the outdoor wax-melter (you call it capping-melter), the word "budge" is used instead of bridge. This is, of course, due to the difficulty of deciphering my hieroglyphics. My 'r' looks like the first half of a 'u.' The word 'budge,' as printed, has no meaning, and renders the description of the melter unintelligible. It's my fault for not writing plainer, and I'll try to do better hereafter.

Salem, Ida.

Joseph J. Anderson.

A Clergyman's Out-apiary.

My work as pastor of a charge does not give me the time one should have if he were to keep many colonies in an outyard; but with the 20 colonies three miles northeast of town the colonies were stronger and made more honey than my 25 colonies at home, where there are perhaps 50 colonies in the town.

First, I built my colonies up strong with bees early in the season, putting on the supers with bait-combs as fast as the bees would occupy them, always being sure they had plenty of room. At the first sign of swarming I set off the supers and looked for queen-cells. When they are about ready to cap over I take away the queen, killing her if I find her undesirable, leaving only one queen-cell. If she is a good queen I use her in making my increase. I had only three natural swarms in this yard, two being found hanging in a tree near by, and these were where I had overlooked the queen-cells. I had no natural swarms in the yard at home. These colonies averaged 100 pounds of honey each, besides making a 40-per-cent increase.

My bees are almost all of the golden Italian strain, and I find that these, with a possible cross of the leather-colored Italian, are the best all-purpose bee for this part of Iowa.

Stockport, Ia.

J. W. Stine.

Two Tons of Comb Honey from 75 Colonies.

I am running for comb honey only. Last summer, 1915, I got nearly two tons of honey per 75 colonies. I prevent swarming by giving the bees their supers the last week in March, and give them plenty of room in front of the entrance so that they have plenty of room for air. A small entrance will make bees swarm, it matters not how many supers you have on. During the honey-flow bees want a large entrance. Give them the full front entrance open, about 1 inch high, 12 to 14 inches long. This is a good cure for swarming.

But the best remedy I ever discovered is to cut queen-cells every seven days for two months. This means the months of May and June; and be sure to keep the hives shaded by using a special cover or roof for shade. Shade is a big swarm preventer; but be sure to give your bees plenty of room during the honey harvest.

Wrightsville, Pa.

E. E. Sterner.

Meadows White with Bloom in March.

I have been looking at my bees this morning. They are in fine condition, and they will have all they can do very soon now. Some white clover is in bloom, and the blackberries are almost ready to bloom too. When they come out the meadows will be white with blossoms for miles in every direction.

F. T. Sedgwick.

Washington, La., March 2.

A. I. Root

OUR HOMES

Editor

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.—I. COR. 2:9.

Thou shalt love thy neighbor as thyself.—MATT. 22:39.

Thou God seest me.—GEN. 16:13.

I suppose most of our readers have noticed an item in the papers concerning a remarkable hen named Lady Eglantine, that laid 314 eggs in the year ending Oct. 31 at the Delaware Experiment Station. Not only the agricultural papers but the daily and religious papers have been free to comment on the performance. The thing that particularly got hold of me was the statement that this hen was "manufactured to order," if I may so use the term. For some years past, Mr. Tom Barron, of England, has been furnishing the laying hens that broke the record in America. I have for some time been urging that we wanted hens to *lay eggs*, or at least a part of us do. We did not care how they looked, or whether they conformed to the standard or not. We want them (to furnish humanity food—good and wholesome food—at a reasonable price) not only for men, but for women and children who love chickens. George A. Cosgrove, in the *Rural New-Yorker*, says in regard to Mr. Barron:

I frankly admit that Mr. Barron has not paid as much attention to beauty as I wish he had; but the great body of American poultrymen are far more interested in having their hens lay an extra couple of dozen eggs per year than in having their cockerels "carry their tails low." If he had so done, his birds would not have been able to make a record for egg-laying year after year in all the egg-laying contests, that no man in the world has been able to equal.

It was the *Rural New-Yorker*, also, I think, that said that Tom Barron and a poultry expert in Maryland had been working together for some time past along the line of the Mendel theory concerning the laws of heredity; and as a result of their experiments they sent five hens to the Delaware College. There are two points here that will be of interest. The test was made by the college, and was, therefore, of course, unbiased. Secondly, she was one of five furnished, and the other four made a record well up toward the 300 mark. If the results were from a single hen we might consider it a freak or an accident; but if four of the sisters proved also to be tremendous layers, it begins to look as if the poultry world had finally got hold of something. I said to Mrs. Root one day that I would give a dollar apiece for a setting of eggs from Lady Eglantine; but pretty soon the papers said the eggs were bringing *five*

dollars apiece; later, *ten* dollars; and finally the *Christian Herald*, in writing up Lady Eglantine, said, "It is said that her eggs sell for sixty dollars each." I soon ascertained that this was a mistake; and, by the way, I wish our periodicals, all of them, when they begin to write up things out of their regular line, would be a little more *sure* that they are right. Submit the matter, for instance, to somebody who ought to know, or some one who is posted along the line in question. Well, I finally wrote to the owners of Lady Eglantine, and found I could get one of her eggs, with fourteen others thrown in, these latter being eggs from her sisters, for \$20.00; and, furthermore, they offer eggs from her sisters, or hens nearly related to her, at only \$2.50 per 15. In due time the eggs came by express on a long trip away down to Florida; but I was greatly disappointed to find, after the seventh day, only three eggs that showed clearly fertile, and I succeeded in hatching the three chicks. They came out about the first of April. I wrote, explaining the matter, and the company very courteously expressed to me at once another setting. From this setting I secured *six* lively chicks, making nine in all. On Monday, April 17, I put the nine chicks, three of them three weeks old, and six about one week old, into a market-basket, and sent them by express to Medina. By the way, I was greatly pleased to find it cost only *69 cents*. I suppose the express company was figuring down close because of the inroads that parcel post has made on their trade. The chicks were on the route four days; but they came to hand bright and lively, and ravenously hungry for water and bread and milk. I supposed I put sufficient wheat, rolled oats, and grit in their basket to last them; but it seems it did not hold out. Just now they are out in the bright April sunshine here in Medina, making explorations in every direction, and even over on to the neighbors' premises. After their long hours of being shut up, and especially the last day without food or water, they appreciated the Ohio angleworm in a way that I never saw chickens do before; and I am about as happy as they are to see them scamper about, helping them out of their troubles when they get into them. For instance, a door was left open, and they got in on the clean cement floor of our basement. Mrs. Root not only had a time in getting them out, but also in sweeping up after them.

Some of you may inquire what the above has to do with my usual Home papers, and particularly what it has to do with the texts I have mentioned. Well, my first text was taken to remind us of a great and precious promise. In years past, in some way I had taken this text to refer to beautiful things after this life is over; but of late I have been thinking it refers also to this present life. If we look about us and see the progress that is being made in everything pertaining to human life and happiness, I think we might recognize the fact that the promise is coming. The boys' and girls' clubs along the line of agriculture are not only surpassing their fathers and mothers but the world at large. The developments of science—just think of it! My father, with a good-sized family of girls and boys, came from Connecticut to Ohio with an ox team. Those of you who have lived for sixty or seventy years have witnessed the wonderful strides. Sometimes we think we have got pretty near the limit. Here is a clipping from the *Sunday-school Times*, with a moral to it:

One who has gone deepest into "the deep things of God" has but scratched the surface of the depths of the riches of Christ. Bible study and interpretation is only in its beginning. The most mature Christian has scarcely begun to lay hold on that for which Christ has laid hold on him. A country lad with a mechanical talent some years ago left home to take his first position in a large machine shop. After his first sight of the great room filled with its wonderful machinery the boy wrote home sadly to his father that there was no chance for him. The work had all been done, and, no matter how good a machinist he might become, there was no improvement that he could make. "Before I finished my four years' apprenticeship," he said, in telling the story afterward, "I saw every single piece of machinery in that great shop thrown on the scrap-heap and replaced by new and improved models. And," he added with pride, "my own hands had left their touch upon that new product." The country boy is now himself a leading manufacturer, and is constantly telling young men to remember that it has not "all been done," that electricity, like every other science, is just in its infancy, and is waiting for some boy to dig deeper into the marvelous hidden secrets.

It looks to me as if four years is a rather brief time in which to dispense with expensive machinery in a great shop; but we have the same thing here in our own shop. Machines that we thought a few years ago were about the best thing that could be made, in a brief time have become entirely out of date. And this is true of the farming business as well as of the machine-shops. We are making progress in improving domestic stock; and it seems this is true of the lady cows as well as the lady laying hens. See the following from the *Plain Dealer*:

UPSETS BUTTER RECORDS; \$20,000 COW ECLIPSES FORMER PRODUCTION MARK.

BUFFALO, Dec. 10.—Lady Pontiac Johanna, a cow valued at \$20,000, has just broken the world's record for butter production by yielding 658 pounds of milk in one week, from which was made 41 81-100 pounds of butter. This eclipses the former butter record by five and one-fourth pounds.

The record cow was milked four times daily under supervision of a representative of the New York State Agricultural Department. Lady Pontiac Johanna is owned by Oliver Cabana, Jr., of Buffalo.

In Our Homes for March 1 I told about that little tract from Charles Gallaudet Trumbull, "The Life that Wins," and I told you in closing that paper that I had at last made a little start along that line, and that is proving true. Where I saw only one wrong thing in my daily habits before, there are now scores; and the above chicken story gives me an excellent chance to illustrate how these things creep in. After I received a postal card from the Eglantine Farm, saying they would send me another setting, free of charge, in thanking them I said something like this: "My good friends, I do not like to be outdone in generosity. If half or more of the eggs turn out fertile I will send you half price for those of the second lot."

When the time came for testing I went into my darkened room and counted out seven of the eggs that showed clearly fertile. Seven is half of fourteen, but not quite half of fifteen. But there was one egg left that I could not fully decide whether it was fertile or not. A germ had started, but there was a faint black line that looked very much as if the germ had died. As I sat there in my darkened room rolling the egg around so as to let the rays of sunlight strike it in different directions I said to myself, "I am really under no obligation to send them \$1.25 more, for there are only seven eggs that are *clearly* fertile." A better spirit, however, whispered that the eighth egg *might* hatch a good chicken after all; and then came the question, if I am working and striving for that "life that wins," that higher life, I must learn to love my neighbor as myself. I must give *him* the benefit of the doubt just as readily as I would decide in favor of myself when in doubt. And then I said, "Get thee behind me, Satan;" and, for fear I might change my mind, I went straightway and put a dollar and some stamps in a letter and addressed it to the Eglantine Farm, and felt very much happier than if I had decided to "save" the amount sent. My good friends, I realize that it is a little humiliating to confess here in this Home paper that I still have defeats along the line of self, and temptations to be selfish. Oh, what a world this would be if every

human being were just as anxious and just as ready to decide all questions without *self* biasing the judgment! Where one is truly "hungering and *thirsting* after righteousness" it ought not to take him very long to settle all such questions as the one I have illustrated above: and such a course, as I understand it, is "the life that wins."*

I believe that just now our best authorities recognize two important elements in figuring on better vegetables or better domestic animals. 1. Heredity and then environment. With these nine precious chickens I have heredity—at least I suppose I have—from the Eglantine Farm by paying for it. And now it is my great pleasure to furnish the best possible environment for these high-pressure chicks. It seems to me they fly and scratch and tear around at a bigger rate than I have ever had chickens of a like age do before. By the way, I forgot to note in the proper place some newspaper reports this remarkable hen produced eggs in one year that weighed *twelve times* as much as she herself did. It is said that she eats about a half more food than an ordinary hen, and that, while it requires about 100 days for the ordinary moult, it took her only *50 days*, and then she commenced laying again. Her weight is 3 lbs. 14 ounces.

Before closing, let me go back a little to this matter of improvement in farm stock. From the little pamphlet sent out by the Eglantine Farm, Greensboro, Md., I clip the following:

And we desire to give full credit to Mr. Tom Barron, whose personal help and professional interest have followed our work. We have made every female bird on the farm. We follow the Mendel laws of heredity.

Notice the expression, "We have made every female bird on the farm." That is, they laid the plan, selected a path, and went to work to build up a superior strain of egg-producing White Leghorns. They went to work as a carpenter starts out to build a house or a machinist to make a new machine; and then they let the Delaware College take the product and report the result to the world.

* Under circumstances like these we are often inclined to think it is entirely an affair of our own; nobody knows anything about it. We can decide one way or the other, and the great wide world will never be any the wiser or know anything about it. At such times as these it is well to keep in mind that other brief little text, "Thou God seest me." Instead of thinking that we alone are to decide, let us think rather of that beautiful poem that we gave the readers of GLEANING: some time ago—"Alone with God." And may we not strive, in our effort for that "victorious life," to feel always and under all circumstances, that God is with us—that there is no possibility of escaping the fact expressed in the brief text, "Thou God seest me?"

HAVING SUNDAY ON SATURDAY.

I have been reading your Homes for the last ten years. I don't believe I have missed one paper, and I have enjoyed them and profited by them. I am told by some of my friends that Sunday is the first day of the week, and that God blessed the seventh day, or Saturday, and made it the sabbath. It is not convenient for me to keep the seventh day, and I wish you would point me to the time and place where God gave authority for the change. I should like to think as you do in this matter: and certainly a man of your position and influence would not teach anything without first looking into the matter for good reasons for his position. So I look to you for enlightenment, and I am sure you can help me.
Fennville, Mich., Oct. 16. E. H. JACKSON.

My good friend, if you have been reading my department of GLEANINGS for ten years past it seems to me you must have noticed what I have said about having Sunday on Saturday. Suggest to the good friends who insist that mankind would be better, and that God would be better pleased by such an arrangement that they call *Monday* the first day of the week, for it really is the first business day, and then we'll have peace and harmony. But one of the Advent friends replied when I suggested the above, "We won't have it so." Once more, on the opposite side of the earth they could not have Sunday on the same day we do, because it's midnight; and there is an island in the sea where there is a dispute about which day is Sunday. Part of the inhabitants came in from the east and part from the west, and the matter isn't settled and cannot be settled unless the people agree to call a certain day Sunday. As I see it, there is nothing in the Bible that does tell or *can* tell which day is Sunday; and it behooves us as Christian people and followers of the Lord Jesus Christ to agree about Sunday as well as other things and turn in and work together.

If we could agree on voting so as to do away with the liquor business, and in the same way do away with wars and bloodshed, it seems to me it would be a *thousand times* more important than wasting our time about which day should be Sunday.

CAN A CHRISTIAN GO TO WAR?

In reply to my footnote on p. 1084, Dec. 15, A. F. Foster replies as below:

Let me say that desperadoes and criminals might be treated as we treat the dangerously insane—restrain, confine, restore, and reform if possible, as we would a member of our own family. Let *none* be set at liberty until judged safe. For us who have learned the *perfect law*, it seems easy and safest and a method God has promised to bless.

Nampa, Ida., Jan. 8.

A. F. FOSTER.

But, my dear brother, it often takes a *deal of fighting* to "restrain, confine," etc. As I pen these lines, April 6, our nation is spending untold thousands in the effort to

"restrain, confine" Villa that he may cease murdering Americans. Shall our nation cease trying to protect its peaceful citizens?

"GOD'S KINGDOM COMING."

The *Christian Herald* for April 5, after recording the startling progress prohibition is making in *Canada* and neighboring provinces, closes with these words:

The nation-wide, the race-wide war on the liquor traffic which is being waged by Christ's followers is one of the signs of the establishment of his kingdom in accordance with this prophecy: "They shall not hurt nor destroy in all my holy mountain; for the earth shall be full of the knowledge of the Lord, as the waters cover the sea.—ISA. 11:9.

Notice the words, "The *establishment* of his kingdom."

REDBUGS, "JIGGERS," FLEAS, AND OTHER "VARMINTS."

Friend A. I. Root:—I suppose you are right in the flush of the redbug season. The little pests are just beginning to crawl out from their winter hiding-places here. I have read with much interest all you have had to say regarding that insect. For more than thirty years I have been battling with them every season, and have learned how to diminish, somewhat, the annoyance they create. I wrote to Dr. Riley, Chief of the Division of Entomology, Department of Agriculture, Washington, a good many years ago, for information regarding the jigger, or redbug. He said there were two varieties, belonging to the flea family—the *Penetrans* and the *Imitans*. They are found everywhere south of the Potomac and Ohio rivers, but more numerous in the gulf states. They are white and invisible until filled with blood, when they can be seen by some persons with the naked eye. Grease or strong essential oils rubbed on the parts exposed to them will keep them away.

I have tried many methods and substances, and have settled down to the following plan: After being exposed to them by being out in the bushes or weeds, bathe with carbolic soap or a few drops of carbolic acid in the bath water in a wash-dish. To stop the itching and burning, I moisten the places with strong ammonia water into which I have mixed enough oil of citronella to make the mixture pleasantly aromatic (I use the same for bee-stings); then rub about the ankles and other parts troubled a mixture of kerosene with moth-balls dissolved in it, and enough oil of citronella to make a pleasantly fragrant lotion. Before going out into jiggery places rub some of the moth-ball-coal-oil liniment about the ankles and wrists, etc. They hop on to our clothing and crawl into the meshes of the cloth, and many remain there for days or weeks ready to devour us when we put them on.

To head them off, last year for the first time I cut the top out of a five-gallon honey-can, pounding down the rough edges smoothly, placed my jiggery garments loosely in the can, poured about a teaspoonful of bisulphide of carbon on a rag, quickly laid it on the garments, and covered the can with, first, a piece of soft towel paper, then with a piece of board weighted down. In half an hour or longer there were no live redbugs in my clothes. I could put them on and feel sure of getting no more bites. Fleas, seed-ticks, bedbugs, chicken-mites, nor any other insect, can live long in the bisulphide fumes. But be very careful not to have any fire near the bisulphide.

Mentone, Ala.

DR. C. F. PARKER.

Thanks for suggestions, doctor. I am glad to say redbugs have given us very little trouble here during the past winter. Our remedy is a strong solution of sal-soda. As soon as you feel the itching, give the place a good scratching and then apply the solution. It will, doubtless, make it smart at first, but it is soon over, and the insect is killed. It should be applied, however, just as soon as you discover you have been bitten.

MITES, CRUDE OIL AS REMEDY.

Mr. A. I. Root:—I just read your article in Nov. 15th GLEANINGS on sticktight fleas and mites. I was bothered with mites for two years after buying some roosters. I let them get quite a start before I noticed them. I cleaned my hen-house every morning, so I thought there was little danger of insects, but I have found by experience that, with several hundred hens, it is necessary to spray often and keep close watch. I tried moth-balls and coal oil in the nests. Of course I burned all straw, etc., in the boxes and charred the boxes as soon as I discovered the mites, and sprayed with coal oil, soapsuds, and crude carbolic acid; but still I had mites under the roosts, and places where spray didn't reach. So I got crude oil, nasty black stuff, and painted roosts and sides of walls. Of course I did that several times in all coops; but it did the work. I have no more mites, and have had none this season. Of course hens get daubed; but it soon wears off.

I have found spraying with strong bluestone water to be effective with fleas. I think they must be short-lived, as they disappeared, so I don't think they breed on the fowls. Of course a person can grease chickens' heads, which will kill the fleas; but that would be some work with several hundred hens.

Manteca, Cal., Dec. 12. ERNEST E. WARREN.

As long as the crude oil remains "dauby" and sticky, mites are pretty sure to stay away. I am glad to add we have not found a mite on our premises here during the past winter, and it is several years since I have seen a "sticktight" flea. As the country becomes settled up, I think these *usually* disappear. Even "redbugs" now trouble very little.

REDBUGS, PINE-NEEDES FOR MULCHING.

Mr. A. I. Root:—I have before me your reply to my letter of Feb. 25, in GLEANINGS for Nov. 15. After reading it I asked my sister-in-law, who has lived in Florida some time, if the redbugs there were the same that we have here, and she said that they are the very same. Now, you may never have seen a redbug; but I am sure I have seen a great many of them. They have to stay on long enough to get full of blood, however, before they can be seen. At that stage they appear as a very tiny red speck that is hard to see. We have also the chicken-mite here, and it is a very bad customer. As to the mulched potatoes, I don't know why the bugs did not bother them; but I think the pine needles kept the ground so moist that the tip-burn, which is said to be caused by drouth, did not get a chance at them. I don't think the odor had anything to do with it. We use dead pine needles here for mulching, bedding stables, and for some other things. They make fine bedding for stock.

Arcola, N. C., Dec. 1.

J. F. HUNTER.

HIGH-PRESSURE GARDENING

SWEET CLOVER; A QUESTION, ETC.

Mr. A. I. Root:—I should like a little information in regard to a piece of ground that I raised a crop of sweet clover on two years ago. I let it go to seed and plowed it under in the fall. I put corn on last summer, and got a good crop. I want to plow it this spring and put oats on it. I turned all the seed down. Would it be safe to turn that seed up again and sow oats and get a good stand of sweet clover, or must I sow more seed? If so, how much to the acre? This piece of land lies on a hill hard to haul manure to, so I have put sweet clover on as a fertilizer, and intend to sow oats this coming summer, mow the sweet clover, and the next season put corn on the same piece, using the clover as my fertilizer, and put on about 8 bushels of lime to the acre every third year. This is my plan, and I have come to the conclusion that I can reap a crop every year by sowing other clovers and vetch in the corn. This has been a very poor field, but I got two loads of soil of a lady about a mile from here, who had a patch of sweet clover in her yard for a flower-bed. The seed she gathered in the Wyoming Valley along the Susquehanna River, so she wanted me to rid her of the clover by taking the soil. I didn't quite rid her of the clover, but I got a good stand, and my bees worked it all summer. The clover grew as high as seven feet in some places. Some of my neighbors laughed at me when I told them about sweet clover; but I am getting the clover, and corn twice and even three times over what they are getting, so I will still stick to sweet clover. One of my neighbors likes to hunt. He said that clover was the largest crop he ever saw on that field, and he wanted to know what I put on that corn to make such a good crop. I told him sweet clover and a handful of hen manure and ashes to every four hills. He said that was the biggest crop he ever saw growing on that field. I wish to show this section that sweet clover is their best friend if they get acquainted with it right, and give it only half a chance.

Dallas, Pa.

H. HEADMAN.

My good friend, I cannot answer positively, but my impression is you will get plenty of clover without sowing any seed if you let all the seed fall on the ground before plowing.

SPINELESS CACTUS; MISLEADING ADVERTISING

We clip the following from the *Florida Grower* of April 1:

Some time ago we were threatened with a lawsuit because we refused to accept the advertisement of a man who wanted to sell spineless-cactus slabs. We refused this business because we believe that the only man who will make money from spineless cactus in Florida is the man who sells the slab seed at \$1.00 each. I had been thru the spineless-cactus furore out in California ten or twelve years before, at which time the promoters claimed that its production would revolutionize the cattle business. If there was any part of the United States where cactus would grow it would be in the dry valleys and on the desert, and it did indeed seem as tho it could be grown without expense and in prodigious quantities there, and that if it was all its promoters claimed for it that cattle could be fed for almost nothing. However, we noticed that the agitation soon died down, and at the time we were offered the spineless-cactus advertising we wrote to Prof. Cook, Horticultural Commissioner of California, asking him what the results had been. His answer determined us

that we were right in refusing to endorse spineless cactus, and this attitude on the part of Prof. Cook was also the attitude of the heads of our own State College and Experiment Station. The suit was never brought. A recent ruling of the Postoffice Department is that papers have a right to refuse to publish advertisements when, in the judgment of the editor, it would not be for the best interests of the paper or the community it represents.

I have never doubted that a publisher had this right, but it is just as well that this ruling settles the question for all time. We have consistently refused to accept advertisements offering liquor, patent medicines, fake employment agencies, and the like, and the land company that gets a permit to use our columns had been closely scrutinized, tho we have inadvertently carried advertising of this kind that we would not carry again. Occasionally we are fooled by parties who seem to be all right.

We commend the *Grower* in the stand it has taken, and devoutly wish there were more such editors. The wild cactus is certainly a boon to cattlemen (see letter below), but it may not pay to grow spineless cactus.

THAT GASOLINE-TORCH (SEE P. 253), AND SOMETHING ELSE.

We saw in GLEANINGS of March 15 where you wanted to know about the gasoline-torch and where made. I would say they are sold in Pearsall, Texas, by Beever & Hinds. The "pear-burners" are used quite extensively in southwest Texas to burn the thorns off the pear so the stock can eat it. The prolonged drouth lately has brought many of them into use. The stockmen employ Mexicans to run them, and you can see a hundred head of cattle following the Mexican as he sings the spines off. We would send you a picture of one as the Mexican burns the pear if we had the time to get it, but we are busy with the bees now. The bees are gathering honey from the mesquite; and if the rain came now it would spoil the bloom, so the beekeepers are not wishing for rain while the stockmen are; and those that have both cattle and bees are betwixt the devil and deep sea.

If it were not for the prickly pear in southwest Texas the stock would die by the hundreds in drouthy times, unless fed cottonseed and cottonmeal. Before the pear-burner was invented, the people used a stick or fork, and with a brush fire would burn for cattle. The gasoline-torch is quite an advantage over the old way.

Nueces County, a stronghold of the antis, went dry. The Texas "pros" are gradually making Texas a dry state. Some of the strongest "antis" are coming over to the pros on account of the brewery frauds that were exposed in Texas.

We are somewhat apprehensive over the war situation between the United States and Mexico. We live below our town about fifteen miles, and now get the mail but once a week. We are about sixty miles from the border, and feel somewhat uneasy. I don't think a Mexican could catch us in some of this brush; and if you could see it you would think we could never be found except by a dog.

I think the gasoline torch costs \$18.00, but since all kinds of metals have advanced in price it may be much more now.

We look forward to the semi-monthly visits of GLEANINGS, and turn to the Home Talks the first thing. May you be spared to us and all the readers of GLEANINGS many years.

My good friend, when I got to the end of your very valuable letter and saw "not publish," I was vexed, and I have taken the

liberty of disobeying, omitting your name. God grant the troubles with Mexico may be peaceably ended.

TEMPERANCE

REFORM (?) LITERATURE SENT OUT BY THE
BREWERS' ASSOCIATION.

We clip the following from *Christian Work*:

The U. S. Brewers' Association is very active nowadays in distributing literature. "Beer Good for Ball-players," and other leaflets of similar caliber. Among the rest is a flyer entitled "Saloon Closer to Christ than Churches," which describes an alleged debate under the superintendency of Mr. E. J. Ward, a former Presbyterian minister, now employed by the University of Wisconsin, to awaken interest in community centers. At this debate it was decided by a vote of ten to five that "the saloon of today follows the general ideas of Jesus Christ better than the church." It was suggested that the good-fellowship of the saloon must be combined with the spiritual ideas of the church, if the latter is to fulfill its mission, and wound up with "Were Jesus to come back to earth, the church would be his first object of attack and not the saloon!"

We are told that drowning men grasp at straws, and the above seems to be a pretty good illustration of it; but when they try to make out that beer is good for baseball players it seems they have got hold of a very flimsy bit of straw. While we have no particular desire to see the brewers of the United States suffer death literally, we are very glad indeed to see indications that their entire business is fast going to the bottom of the sea.

KANSAS AND PROHIBITION: STILL MORE ABOUT IT.

So long as the "wets" keep scattering their misleading and false statements we propose to keep on giving the truth. We clip below from the *Christian Herald*:

PROSPER IN PROHIBITION KANSAS.

Despite the expression of deep distress upon the part of the liquor dealers at the failure of prohibition in Kansas to prohibit, it does prohibit marvelously well, according to the most reliable testimony. The attention of the whole nation was attracted by the report for 1915 of a mortality of only 9.8 to the 1000 of population, being the lowest of any state in the Union. Samuel L. Rogers, director of the United States Bureau of the Census, wrote to W. J. Deacon, Registrar of Kansas Vital Statistics, asking why the death rate was so low. Mr. Deacon in his reply gave prohibition credit for a full share of the public health in these words: "Kansas is a prohibition state, and in Kansas prohibition really prohibits." He said also that there was general education, the people had money enough to make them comfortable, and were wise enough to avoid the things that impair health and shorten life. Kansas began the new year without a dollar of indebtedness, having burned up the last mortgage for \$159,000, and claiming the enviable notoriety of being about the

only state in the Union free of debt. Prohibition Kansas holds in one hand the cleanest bill of health, in the other the completest financial exhibit, while in the mind it has truth and in its heart love. The violent denunciations of the failure of prohibition in Kansas by those whose pockets have been affected by it, and by those who have been deceived by their false statements concerning it, do not change the fact that prohibition in that state does prohibit, bringing with it the reward of health, intelligence, thrift, and virtue. Kansas with eighteen sister states is by its law saying: *Look not thou upon the wine when it is red, when it giveth its color in the cup, when it moveth itself aright. At the last it lieth like a serpent and stingeth like an adder.*"

SAVING THE COST OF DOCTOR'S BILLS.

If you are not already taking *Farm and Fireside*, you had better send for the issue of April 8 and read the article entitled "How a Kansas County Decreases its Number of Deaths a Third." It may be worth a good many dollars to you. I clip from it as follows:

The death rate to the thousand for Kansas is 9.8, which, according to a recent federal census statement, is the lowest death rate of any state that is conducting a state-wide health work.

Such a record as Riley County has made is possible only because the work has been in charge of a competent, progressive, and efficient man. Dr. J. C. Montgomery has been the county health officer, and has directed the health work of the county since it was started six years ago. He has taken the public-school children and their parents into his confidence. Now after six years' work the school children as well as their parents are well informed about disease. They know the causes of disease and how to prevent sickness.

Since the health work was started the death rate for the county has not only been decreased greatly, but the people have been saved thousands of dollars in doctor and medicine bills, and every one has been able to do better and more work because they have been enjoying health.

The cost of conducting the health work a year has been slightly more than 6½ cents a person. And this isn't really an expense: it is an investment, because the saving in death losses, doctor and medicine bills alone is many times more than the actual money spent.

Many persons who some time ago ridiculed the health department and complained bitterly every time a few dollars of the public money was used to prevent disease now indicate not only a willingness but a keen desire to co-operate with the department.

I did not find any mention in the article in regard to prohibition in Kansas; but the fact that Kansas stands almost if not quite at the head of our nation as a healthy place to live is doubtless largely owing to the absence of saloons.

WHY NOT BUY THE VERY BEST QUEENS?

when you can get them for no more than others are asking for queens that do not have as good a record? We have made arrangements with Dr. C. C. Miller to furnish us breeders from his best stock, which means the best stock in the world, as his stock has produced more honey than any other strain in the world, or 266 sections weighing 244 pounds (how is that for filling the sections full?). In extracted honey this would mean about 488 pounds. Just think of it—an average of nearly 500 pounds per colony. The breeders Dr. Miller sent us are as fine as can be, besides the record they have, being pure three-banded Italians, very gentle, and produce fine large daughters. These are not queens from a mother that has produced one good crop, but it has been bred in them for generations until their honey-gathering is a fixed quality. Editor Root says in GLEANINGS, page 788, "Those queens (Dr. Miller's) ought to be worth \$10.00 to \$25.00 each." Others have sent him \$10.00 to \$25.00 for a single queen. Few people ever have a chance at the best in the world; so, grasp the opportunity while it is offered you.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller, Marengo, Ill., March 1, '16.

	1	6	12		1	10
Untested	\$1.50	\$ 7.50	\$12.00	1/2 pound bees.....	\$1.00	\$ 8.00
Tested	2.50	13.50	24.00	1 pound bees.....	1.50	13.50
Select Tested, \$3.50; breeders, \$5.00 to \$10.00				2 pound bees.....	2.50	23.50
each; virgins, 50 cts. each; 12 for \$5.00;				3 pound bees.....	3.50	33.50
25 for \$10.00.				5 pound bees.....	5.50	53.50
1-frame nuclei	\$1.25				\$2.25	
2-frame nuclei				3-frame nuclei		\$3.25
Colony in 8-fr. hive, \$6.00; 10-fr. hive, \$7.00.				Queens of Our Strain.—Untested, 75c; 12 for		
Prices of colonies, nuclei, and pound packages				\$8.00; 25 or more, 60c. Tested, \$1.25; 12 for		
do not include queens.				\$13.50. Select tested, \$1.75 each.		

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

BEE-LINE QUEENS.

Three-banded and Golden Italians from Caraway's Prize Stock. I secured the best stock obtainable; long-lived, unexcelled as honey-gatherers, and very gentle. No foul brood nor diseases. Safe arrival and satisfaction guaranteed on all queens in the United States and Canada. State Inspector's Health Certificate with each shipment.

Italian Queens.	Nov. 10 to May 10			Untested Queens by the 100:						
	1	6	12	April	12	25	50	100		
Untested	\$1.00	\$ 5.50	\$10.00	May	70.00					
Tested	1.25	6.50	12.00	June to November.....	65.00					
Select Tested	2.00	10.00	18.00	Breeders, fair, each, \$5; Extra Select, each, \$10						
Pound Packages of Bees		1	6	12	25	50	100			
1-lb. packages	\$1.50	\$ 8.50	\$16.00	\$33.00	\$ 65.00	\$127.50				
2-lb. packages	2.50	15.00	29.50	58.50	116.00	230.00				
Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.										

Add price of queen to bees by the pound if queens are wanted. Safe arrival guaranteed on bees by the pound within six days of Mathis. Orders booked now, and queens shipped when wanted.

B. M. CARAWAY, MATHIS, TEXAS

SAFETY FIRST!

You are always safe in buying Murry's bees and queens. Unexcelled for prolificness, gentleness, and honey-gathering qualities. No disease. Health certificate with each shipment of bees and queens. Three-banded Italians. Goldens. Tested queens any time.

Queens:	March 1 to May 1			May 1 to Nov. 1		
	1	6	12	1	6	12
Untested	\$1.00	\$ 5.50	\$10.00	\$.75	\$4.00	\$ 7.50
Tested	1.25	6.50	12.00	1.25	6.50	12.00
Select Tested.....	2.00	10.00	18.00	1.50	8.00	15.00

Bees by the pound after May 10. Safe arrival guaranteed to any point within six days of Mathis, Texas. Large orders must be placed 30 days in advance of shipment, accompanied by 25 per cent advance payment. This means orders amounting to \$50 and up. If queens are wanted, add price of queen to price of pound package.

Pound packages	1	12	50	100
1-pound package	\$1.50	\$16.00	\$ 65.00	\$127.00
2-pound package	2.50	29.50	116.50	230.00

H. D. MURRY, MATHIS, TEXAS

Talking Queens

Laws' queens speak for themselves, as "actions speak louder than words," while pleased customers everywhere have been boosting Laws queens many years.

Twenty-seven years' continuous advertising in this journal as queen-breeder, with continuous careful breeding from the very best Italians, places Laws queens and Laws methods far above the average.

If quick service and reliable dealings count with you, place your orders with me. My capacity is from five to six thousand queens in the next five months. Five hundred young laying queens ready now April 3, and many more before this reaches your eyes.

Prices: Tested, each, \$1; 12 for \$10; 100 for \$80. Untested, 90 cts.; 12 for \$9; 100 for \$70. Breeding queens, extra select, \$5 to \$10.

There is not a known case of bee disease in this or adjoining counties.

W. H. Laws, Beeville, Texas

Inspector for Bee County

Archdekin's

Fine Italian Queens---3-banded

Prolific, Hardy, Gentle. They are Persistent, Profitable, Producers. None better.

Prices	Before July 1			After July 1		
	1	6	12	1	6	12
Untested	1.00	\$5.00	\$9.00	.75	\$4.00	\$7.00
Tested	1.50	8.00	15.00	1.00	5.50	10.00
Select tested ..	2.00	10.00	18.00	1.50	8.00	15.00
2 frame nuclei ..	2.50	14.00	26.00	2.25	12.00	22.00
1-lb. pack. bees..	1.50	13.00	25.00	1.25	7.00	13.00
2-lb. pack. bees..	2.50	14.50	28.00			

Above prices of nuclei and packages do not include queen. Add price of queen wanted. Satisfaction and safe arrival guaranteed. Absolutely no disease in this country. Get your order in early, and secure prompt delivery. Orders booked if half of amount accompanies order. Queens ready April 15. Nuclei and packages May 1.

J. F. ARCHDEKIN, Bordlonville, Louisiana

Italian Queens --- Three-banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$3.00 each; \$30.00 per dozen. Breeding queens, \$5.00 each. Special prices on large orders. Our customers must be pleased. Safe arrival guaranteed. Send check with orders to

J. W. Taylor & Son, Beeville, Bee Co., Texas

Prices on nuclei on request.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees...	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio



ITALIAN QUEENS

THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street

Queens and Bees

Three-banded Italians. Bred for honey and gentleness.

	1	6	12
Untested	\$.75	\$4.25	\$ 8.00
Select Untested	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00.

If wanted with queen, add price.

Bees in 1-lb. packages, \$1.25, without queen.

Perfect satisfaction and safe delivery guaranteed.

N. Forehand, Fort Deposit, Ala.

THREE-BAND ITALIAN QUEENS

They are bred from imported mothers. They are the best for honey-producing purpose; very gentle, not inclined to swarm. If you buy once you will buy always. GUARANTEE that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

Untested, . . . April 1 to July 1, 1, \$0.75; 6, \$4.25; 12, \$8.00
Select Untested, . . . " 1, .90; 6, 5.00; 12, 9.00
Tested, . . . " 1, 1.25; 6, 7.00; 12, 11.00
Select tested, . . . " 1, 2.00; 6, 11.00; 12, 20.00

L. L. Forehand, Fort Deposit, Alabama

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633 Central Bldg. . . Los Angeles, Cal.

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For tacking on to the hives as an aid to the better control of your bees; very durable, visible and attractive. Approved by large, practical bee-raisers. Circular and sample free.

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Tells about planting, pruning, spraying and selling fruit and garden truck.

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We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.
Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

Three-band Italians

Honey-gatherers at the following prices.
Untested, warranted purely mated queen, \$1.00
Tested 1.25
3-frame nucleus and untested queen 4.00
2-frame nucleus and untested queen 3.00
8-frame colony and untested queen 8.50
(Colonies shipped in a new hive.)
Tested queens in colonies or nuclei, 50 cts. more.
No disease. State inspected. Shipment May 15.
E. A. LEFFINGWELL, ALLEN, MICHIGAN

Italian Queens

with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1.
Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

If you are in need of bees, queens, or apiarian supplies, and want the best at a reasonable price, send for our catalog of 8 and 10-frame chaff hives, full colonies, nucleus colonies, or bees by the pound, shipped promptly. Tested Italian queens, \$1.50. Untested, \$1.00.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, \$1.00; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.

20-30 per cent Discount Lewis Beeware

Stock contains most of the new things listed, and other standard things used by beekeepers. Here is a few of my reductions while they last:

Wisconsin 8-frame 1½-story hives . . \$1.50
Wisconsin 10-frame 1½-story hives . . 1.75
Dovetailed 10-frame 1½-story hives . . 1.80
Dovetailed 10-frame No. 1 Supers . . .45

Send for catalog, also a list of what you want so I can price it for you. Dadant's Foundation at satisfactory price.

Adam A. Clark, Le Mars, Iowa

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The only garden tool that successfully, in one operation, *kills weeds*, and forms a complete *soil mulch* to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

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Box 117 David City, Nebr.

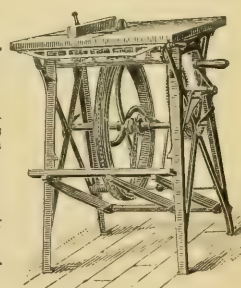
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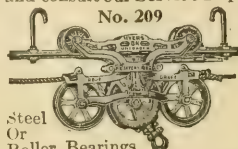
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is an important crop. It may be grown under different names in different localities according to soil and climatic conditions. Whatever the kind may be your farm is producing, **MYERS HAY TOOLS** will unload it just as they will your other crops—**grain, fodder, cow peas and the like**—all come within the scope of *Myers Unloaders, Forks, Slings and Fixtures*.

A load of hay or grain in three or four drafts is an easy job for **MYERS UNLOADERS**. The extra long trucks, large track wheels, heavy steel axles, patented double lock, steel or roller bearings, and malleable construction permit this capacity with an ease of operation that is surprising. See to it now that your barns are equipped with a **MYERS OUTFIT**. Send for attractive Booklet—**MYERS HAY TOOLS**—and consult our **Service Dept.** for information.



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Extra Long
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IN OHIO?—Then your orders will naturally gravitate to Zanesville, the Bee-supply Capital of the state.

IN WEST VIRGINIA?—The large supply-house nearest to most beekeepers in this state is at Zanesville.

IN WESTERN PENNSYLVANIA?—You are a next-door neighbor.

ELSEWHERE.—Zanesville service will yet commend itself to you as being the best obtainable.

The leading line of bee supplies, unsurpassed shipping facilities, years of experience, and painstaking care in packing and forwarding goods, fair and considerate treatment, all insure a degree of satisfaction that can scarcely be duplicated elsewhere.

If exasperating delays or otherwise unsatisfactory service have been your past experience, give us a chance to demonstrate the superiority of the service we offer.

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E. W. Peirce,
22 So. Third St. Zanesville, Ohio
Distributor for the largest bee-supply
factory in the world

"Griggs Saves You Freight"

TOLEDO

We are always on deck, and with a full line of **ROOT'S FINE GOODS**, and at factory prices. . . No order too small nor too large to receive our prompt attention.

PREPAREDNESS counts in beekeeping; and if you are not prepared you are apt to lose money; so, better be prepared, and send your order now, as goods go same day order is received.

Beeswax wanted, cash or in trade.

S. J. Griggs & Co., Toledo, Ohio

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"Griggs Saves You Freight"

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
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Send twenty-five cents for a four-months' trial subscription

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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

Amber honey, barrels, 6 cts. lb.; 60-lb. cans, 7 1/4 cts. lb. Light-amber honey, 8 cts. in 60-lb. cans. STRINGHAM, 105 Park Place, New York.

Best flavor alfalfa-sweet-clover honey; 2 60-lb. cans, \$9.50, f. o. b. here; delivered west of Chicago at 9 cts. a pound. WESLEY FOSTER, Boulder, Col.

FOR SALE.—Buckwheat honey at 7 cts. in new 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 per can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less than car lots. J. E. HARRIS, Morristown, Tenn.

WANTED.—A small quantity of apple-blossom honey. Send sample, also price asked. Address A. I. ROOT Co., 139 Franklin St., New York City.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices. SUPERIOR HONEY Co., Ogden, Utah. "Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL Co., Clintonville, Ct.

HONEY LABELS.—New designs. Lowest prices. Catalog free. LIBERTY PUB. Co., Sta. D., bx 4E, Cleveland, O.

Frames, high grade, low price. SIVELEVETTS FRAME WORKS, Whitneyville, Ct.

FOR SALE.—40 cases of two 5-gallon cans at 20 cts. each. Guaranteed O. K. C. S. WATTS, Monticello, Ill.

FOR SALE.—80 cases of used 60-lb. cans in good condition, two in case, for quick sale; 20 cts. a case, f. o. b. Milwaukee. H. HOWARD, Station D, Rt. 2, Milwaukee, Wis.

FOR SALE.—Medium-brood foundation, 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash; 27 trade. J. F. ARCHDEKIN, Bordonia, La.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—100 lbs. medium brood foundation for Hoffman frames; \$43.00, or \$22.50 for 50 lbs. J. HOLZHAUER, 879 Sheridan Ave., Detroit, Mich.

FOR SALE.—Two-frame Root automatic honey-extractor, price \$8.00; Hatch wax-press, price \$3.50. Both in good condition. T. F. CHILD, Raymond, Kan.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grown in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

BEE SUPPLIES, all kinds. Low prices. Discount for early orders. Catalog free. WILLIAM ROUSE, Mexico, Mo.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

FOR SALE.—40 8-frame Langstroth hives complete with drawn combs. Frames wired on full sheets of foundation, at \$2.00 each. WM. H. KEYSER, Schenectady, N. Y.

EASTERN MICHIGAN beekeepers especially are invited to send for my catalog of Root's goods and specialties. Try me for satisfactory goods, prices, service. ARTHUR RATTRAY, Almont, Mich.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your orders. R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Ford motor truck, used one year; good as new; just the thing for outyard work. Priced to sell. Satisfaction guaranteed. For particulars and photographs write LEON MORRIS, Elizabethtown, Ind.

FOR SALE.—Friction-top pails, 5-lb. size, per 100, \$4.50; 500, \$21.25; 10-lb. size, per 100, \$6.25; 500, \$30.00. Low prices on other sizes in bulk. Also furnished in reshipping-cases. Shipped from Chicago. A. G. WOODMAN Co., Grand Rapids, Mich.

Honey extractors and tanks. Two 6-frame extractors, capacity 140 gallons, \$9.00 each. Old-style reversible, but not automatic; never been used. Baskets can be taken out and used for honey-tanks if desired. Also four extractor-cans from which reels have been removed; capacity, 90 gallons as honey-tanks; \$5.75 each. W. T. FALCONER MFG. Co., Falconer, N. Y.

SECTIONS \$2.85 PER THOUSAND.—The Beekeepers' Review is making a lead on sections, and furnish their subscribers with *any* make you prefer at from \$2.85 to \$4.50 per M. Order the same make of section as usual, but do not send us but \$4.50 per M. for the No. 1 grade, and 50 cts. less for the No. 2 grade. One make can be furnished as low as \$2.85 per M. for the No. 2 plain. *Do not buy a single supply for the bees without first investigating our co-operative plan of buying.* Write your wants to *The Beekeepers' Review*, Northstar, Mich.

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PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea! Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

POULTRY

Some farmers in this locality have pure-bred eggs; 50 cts. for 15. Write FRED SALZMAN, Bedford, Ill.

BABY CHICKS. Wycoff, and a few of Barrow's choicest. Prices reasonable.
LINESVILLE PULLET HATCHERY, Linesville, Pa.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize-winners. Eggs for hatching, \$1.00 for 13; \$2.00 for 30. E. B. BROWN, Box 323, White Plains, N. Y.

FOR SALE.—Single and Rose Comb Brown Leghorn eggs for hatching, \$1.00 per 15, postpaid. Farm-raised stock. Also Indian Runner duck eggs, the white-egg strain. G. S. YOUNG, Rt. 1, Munson, Pa.

FOR SALE.—Winter-laying White Wyandottes 200-egg strain, built up after years of careful selection and breeding from famous prize-winning stock. Setting eggs, \$1.05 to \$5.00 for 15, according to pen. Day-old chicks, in lots of ten or more, 25 cts. each. Place orders now for early delivery.
C. E. BLANCHARD, Youngstown, O.

WANTS AND EXCHANGES

WANTED.—To buy bees, young man to learn, and partner.
HOWARD HONEY CO., Tyre, Mich.

WANTED.—To buy 200 colonies of bees, Colorado preferred.
F. R. ROE, Nevada, Mo.

For sale or exchange for extracted honey, a No. 5 Oliver typewriter. If interested, address
J. B. HOLLOPETER, Pentz, Pa.

WANTED TO CONTRACT.—White sage bulk comb honey in carload lots only. Correspondence solicited. W. J. OATES, Los Flores Apiaries, Lompoc, Cal.

AUTOMOBILE.—20-horse-power roadster, just overhauled, new piston rings and new gears, to exchange for bees. Care of THE A. I. ROOT CO., 915 Walnut St., Des Moines, Ia.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Farm of 13 acres, 100 hives of bees, mostly double-walled; Hoffman frame, run for comb and extracted, in one of the best locations of Schorrie Co. For further particulars address owner.
E. J. DIENST, Gilboa, N. Y.

Twenty acres in San Joaquin Valley, California, in fruits, vegetables, alfalfa, with cows, pigs, poultry, and bees will pay you steady, substantial profits. Delightful climate, rich soil, good schools, churches, fine roads. Thrifty, hospitable neighbors. Write for free books. C. L. SEAGRAVES, General Colonization Agent A.T.&S.F. Ry., 1927 Ry. Exchange, Chicago.

FOR SALE.—Bee location, including spring-water business; 100 colonies of bees and all fixtures with residence and one or two acres of land, situated one mile northwest of city of Sheboygan, Wis. If interested, act quick. Address CRYSTAL SPRING-WATER CO., Rt. 3, Sheboygan, Wis.

You'd LIKE IT IN NORTH CAROLINA, MARYLAND, OR VIRGINIA. Farm Lands \$15.00 per acre up. Easy terms. On railroad, near market. Write for list. Mild summers, short winters, good markets. If you will send names of two friends interested in the South, will send you a year's subscription free to Southern Homeseeker. Write F. H. LABAUME, Agr. Agt. Norfolk & Western Rwy., 246 N. & W. Bldg., Roanoke, Va.

MISCELLANEOUS

Burt's superb Dahlias, 20 kinds, \$1.00. Postal brings information. H. BURT, Rehoboth, Mass.

Kodak work finished and mailed in 12 to 24 hours. Send for sample and free booklet, "How to Make Money with a Kodak." WEBB'S KODAK STUDIO, Morgantown, N. C.

No flower-garden is complete without dahlias and gladioli. We grow only the choice varieties. Six dahlias, all different, 50 cts.; 13 kinds for \$1.00; 25 gladioli, finest colors, 50 cts.; 60 for \$1.00. All postpaid.
S. W. PIKE, St. Charles, Ill.

CHEESE.—Swiss, 5 pounds, \$1.40; brick, 5½ pounds, \$1.15; American, 5 pounds, \$1.15; Limburger, 4 pounds, 85 cts. Ask your postmaster what the postage is on 6 pounds to your city, and add postage to the above amount, and get some real cheese.
E. B. ROSA, Monroe, Wis.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Try my MAPLEWOOD queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

Two-frame Italian nuclei with queen, \$2.50.
AUGUST NIGABOWER, Ilion, N. Y.

Three-band Italian queens, \$1.00 each; \$9.00 a doz. EDITH M. PHELPS, Binghamton, East End, N. Y.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

FOR SALE.—200 colonies bees and equipment, \$500. MRS. S. C. KNOWLTON, Mazeppa, Minn.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Mt. Hamilton Apiary, Italian Queens. Untested, 75 cts.; tested, \$1.50 and up. CHARLES WOELH, 360 N. Lincoln Ave., San Jose, Cal.

FOR SALE.—Six colonies of bees, strong and healthy; supers with hives. C. W. CHANDLER, 817 So. Keeler Ave., Chicago, Ill.

FOR SALE.—Three-frame nucleus with queen, \$2.50; 3 or more, \$2.25; on Langstroth frame; commence to ship May 15. W. H. STANLEY, Dixon, Ill.

FOR SALE.—We offer to some one in this or near-by state, 50 to 300 colonies, 8-frame, first class. THE E. F. ATWATER CO., Meridian, Ida.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

MULLIN'S UNRIVALED ITALIAN QUEENS.—Gentle and prolific, three-banded, and one of the best honey-gathering strains. After May 1 to July 1, untested, \$1.00; \$9.00 per dozen; special rates after July 1. Try one. You will want more.
O. S. MULLIN, Holton, Kan.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing.
A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

FOR SALE.—Bees. Twenty-five 8 and 10 frame 1½-story, new hives, \$3 each if all are taken. Satisfaction guaranteed. S. S. CLAUSSEN, Oregon, Ill.

HOLLOPETER's strain of Italian bees and queens will be ready soon. A postal brings promptly descriptive price list for 1916.

J. B. HOLLOPETER, Queen-breeder, Pentz, Pa.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Guaranteed to please or your money back. Circular free.
J. I. BANKS, Dowlstown, Tenn.

\$5.00 each, ten colonies Root strain Italians in 8-frame dovetailed hives on wired Hoffman frames; full sheets foundation. Hives nearly new, and painted. JOHN E. EVERETT, Bound Brook, N. J.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Italian bees, full colonies, 3-frame nucleus, and pound packages. Let us quote you on what you need. Untested Italian queens, \$1.10; tested, \$1.50.
I. J. STRINGHAM, 105 Park Place, New York.

Now booking orders for three-frame nuclei, Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction.

S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens about May 1. Select tested, \$1.25; tested, \$1.00; untested, 70 cts.; dozen, \$8.00; select untested, 80 cts.; dozen, \$9.00. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

Order queens now for delivery by return mail; three-banded Italians, the business bee, and gentle; disease unknown in this locality; fully guaranteed. Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00.
M. F. PERRY, Bradentown, Fla.

Southwest Virginia five-band Italian queens, a fancy comb-honey strain; gentle to handle. They will please you. Try one. Untested, \$1.00; 6, \$5.00; 12, \$9.00.
HENRY S. BOHON,

Rt. 3, box 212, Roanoke, Va.

Let us send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want, we shall be glad to write you what the express will amount to.
R. V. & M. C. STEARNS, Brady, Tex.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.
M. BATES, Rt. 4, Greenville, Ala.

QUEENS.—Improved three-banded Italians bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. RAHN BEE AND HONEY CO., Haileybury, Ont.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted.

J. W. SHEERMAN, Valdosta, Ga.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.
G. W. MOON, 1904 Park Ave., Little Rock, Ark.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Three-banded Italians, ready after June 15. Will book your orders now with 10 per cent cash down. Queens, untested, 75 cts. each; \$8 per doz. Nuclei, 1-fr., \$1.50; 2-fr., \$2.25; 3-fr., \$3.00. Full colonies, \$7.00 each. EGGERS APIARIES CO., Rt. 1, Eau Claire, Wis.

FOR SALE.—Three-banded Italian queens and bees. I am booking orders for June delivery, untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Write for circular and price list.

ROBERT B. SPICER, Rt. 181, Wharton, N. J.

Queens, ready in May. Northern-bred three-banded Italians, bred for gentleness, wintering, and honey-gathering. Select untested, \$1 each; 6, \$5.00; select tested, \$1.75 each. Send for price list and free booklet, How to Transfer, Get Honey, and Increase.
J. M. GINGERICH, Kalona, Ia.

FOR SALE.—Early delivery of three-band Italian queens, pure mating, I guarantee. Any number for only 75 cts. each. These are bred from the best stock and by the best methods. No disease. We are better prepared than ever before to fill orders promptly.
W. D. ACHORD, Fitzpatrick, Ala.

Queens now ready. Golden and three-band Italian queens. I shall do my best to fill all orders promptly. If any queen fails to give satisfaction I will replace her free. Untested, 75 cts. each; six for \$4.00. Send all orders to

E. A. SIMMONS, Greenville, Ala.

If you want a queen for that queenless colony, we can send it to you by return mail. Young tested queens, \$1.00, \$12.00 per dozen. Untested, \$1.00; \$9.00 per dozen. We breed the three-band Italians only, and we breed for the best. Our thirty years of queen-rearing proves this. We never had a case of foul brood in our apiaries, and we guarantee every queen sent out by us.

J. W. K. SHAW & CO., Loreauville, La.

This is the combination you have been waiting for: Your *Dr. Miller* queen introduced to a 2-lb. swarm; listen: Two pounds of bees, \$2.50; 1 *Dr. Miller* queen, \$1.50; the *Beekeepers' Review* for 1916 (we have the back numbers), \$1.00. Total amount, \$5.00. Send us only \$3.75, and your *Review* will begin coming immediately, and the two pounds of bees with a *Dr. Miller* queen introduced will be shipped by express in June. The reason we make this extraordinary offer is, we want to put the *Review* in the hands of every subscriber of *GLEANINGS*, and we take this way of introducing it to you. Address, with remittance, *The Beekeepers' Review*, Northstar, Mich.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

ITALIAN QUEENS. Northern-bred, Three-banded, Highest Grade, Select Tested, Guaranteed. Queen and drone mothers are chosen from more than 600 colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, one, 80 cts.; 12, \$8.00; 100, \$55.00. Also bees by the pound. Send for circular.

J. H. HAUGHEY, Berrien Springs, Mich.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, Box 315, Buffalo, Tex.

A daughter of one of Dr. Miller's best honey queens, and the *Beekeepers' Review* for 1916 for only \$2.00. A daughter of one of the very best honey-getting queens selected from 1100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the *Review* for 1916 for only \$1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy.

THE BEEKEEPERS' REVIEW, Northstar, Mich.

Three-banded queens and bees by the pound, ready now. One untested queen, 90 cts.; \$9.00 per doz.; \$17.50 for 2 doz.; \$65.00 for 100. Tested, \$1.50 each; fine breeders, \$5.00 each; 1-lb. swarm with fine queen, \$2.25 each; without queen, \$1.50 each; 50 for \$70.00; 100 for \$135. Add queens at above prices. I can furnish you in any quantity from one to 1000 queens or swarms of bees at above prices from April 15, thruout the season. Write to Curd Walker, the Queen-breeder, your wants. He will give you a square deal. Box 18, Rt. 1, Jellico, Tenn.

Special for May, express prepaid on 10 or more swarms of bees in packages, at my regular price of 1 to 49, 1-lb. at \$1.50 each, and 2-lb. at \$2.50 each, and 50 to 500 of the above at 12½ cts. less each. Untested Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. No reduction on quantity of queens for April and May. Quality, service, safe delivery, and no disease, I guarantee. We spare no labor nor money to produce the best for you is why we cannot make a lower price. Early swarms get the honey. We can deliver the goods with pleasure to both of us. W. D. ACHORD, Fitzpatrick, Ala., the successful package-shipper and queen-breeder.

BREES AND QUEENS.—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey-gatherers. We breed this stock only, and guarantee delivery only to points west of the Rocky Mountains. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100; tested queens, \$1.25 each; \$12 per dozen; \$85 per 100. Three-frame nuclei, \$2.25 each; \$200 per 100. Bees, ½-lb. packages, 75 cts. each; \$6.00 per 100; 1-lb. packages, \$1.00 each; \$85 per 100. Add price of queens to above packages. Complete catalog free on application. SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier, if necessary. Bees are all on standard Hoffman frames, and combs are all built on full sheets of foundation and wired frames. We guarantee bees to be free from disease.

THE HYDE BEE CO., Floresville, Tex.

HELP WANTED

WANTED.—Helper in apiaries. State experience, \$50 month and board.

GEORGE A. BALDERSTON, Kennett, Cal.

WANTED.—At once, young man to work with bees. Give age, and wages expected, in first letter.

M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

WANTED.—Helper in apiaries. State experience, age, and wages wanted, in first letter.

MATHILDE CANDLER, Cassville, Wis.

WANTED.—Industrious young man, fast worker, and of clean mental and body habits, as a student helper in our large bee business for 1916 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.

W. A. LATSHAW CO., Clarion, Mich.

ON THE BOOKSHELF

It is surprising to note the various uses to which Portland cement can be put. There is no building permanently constructed that does not require the use of concrete for one part or another. Beekeepers have been quick to see the advantages of this material, not only for hive foundations but for beecellars, honey-houses, fence-posts, walks, etc. Reinforced concrete—that is, concrete strengthened by wire or rods—makes a construction that cannot be matched for strength and durability.

In concrete work especially, a lack of intelligent handling and the use of improper materials and mixing, accounts for many a poor job. One of the best books that we have ever seen on the subject is "Concrete on the Farm and in the Shop," by H. Colin Campbell. This book is amply illustrated with halftone engravings from photographs of work actually under construction, and should appeal to a beekeeper desiring to make anything, from a concrete slab for a hive to rest on, to an elaborate beecellar. Price 75 cts. Published by the Norman W. Henley Pub. Co., 132 Nassau St., New York.

Convention Notices

SPRING BEEKEEPING SCHOOL AT THE MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MAY 31—JUNE 14, 1916.

The most ideal time in the year to study bees is in May or June, when the colonies are at their maximum in strength and activities. The bees are easily handled. The student quickly gains a full acquaintance with the majority of the manipulations necessary to beekeeping. At this time of the year, once in three years an intensive course in beekeeping is offered at the Massachusetts Agricultural College, primarily for a limited number of practical beekeepers. This year particularly the course is to be conducted by an especially strong staff of the College faculty, and will occupy seven hours daily for two weeks, Saturdays being devoted to excursions. The course comprises lectures, laboratory practicums, work in the beeyard, and field excursions. It is under the direction of Dr. Burton N. Gates.

The College maintains a practical beeyard of about fifty colonies as well as outyards and a well-appointed beehouse and laboratories, besides a wax-working laboratory, library, and beekeeping museum. These exceptional facilities are offered the student in this subject.

APPLICATION.—It is desirable to apply for this course early, as it has been found necessary to limit the school to fifteen students. Students will be accepted in the order of application as shown by date of their letters. Application should be made by letter to Prof. W. D. Hurd, Director Extension Service, Massachusetts Agricultural College, Amherst.

FEE.—A fee of two dollars is charged to cover all laboratory expenses.

EQUIPMENT.—Such equipment as is made by the students in their course may be purchased at cost.

COURSES.

1. **PRACTICAL BEEKEEPING.**—Lectures: laboratory practice in the general work of the beekeeper; beekeeping equipment, practices in the preparation of materials, location of the apiary; commencing with bees, handling of bees, practice in beeyard procedure; spring manipulation; fall preparation, wintering; comb and extracted honey production; bee diseases and their treatment; apiary sanitation; making increase; elements of queen-rearing, etc.—Burton N. Gates, Associate Professor of Beekeeping; John L. Byard, Superintendent of the Apiary; Gladstone H. Cale, Laboratory and Apiary Assistant.

2. **LIFE OF THE HONEYBEE.**—Lectures.—Henry T. Fernald, Professor of Entomology.

3. **SPECIAL PROBLEMS OF THE BEEKEEPER.**—Lectures: Demonstrations in requeening, the races of bees, the introduction of queens; swarming and handling swarms; comb-honey production; enemies of bees.—James B. Paige, Professor Veterinary Science.

4. **CROPS FORAGED BY BEES.**—Lectures: field excursions.—William P. Brooks, Director of the Experiment Station.

5. **THE RELATION OF BEES TO THE POLLINATION OF PLANTS, INCLUDING COLORATION, ODOR, NECTAR SECRETION.**—Lectures: Laboratory work in blossom structure and dissection.—A. Vincent Osmun, Associate Professor of Botany.

6. **BEES IN HORTICULTURAL PRACTICES.**—Lectures: field work in the utilization of bees in fruit production, market gardening, cranberry culture, and greenhouse cucumber-growing; beekeeping as affected by spraying practices.—Walter W. Cheno-weth, Associate Professor of Pomology.

GENERAL INFORMATION.

Amherst is desirably situated in the Connecticut Valley. In May or June the scenery is at its height in beauty, hence this season offers a pleasant opportunity for the course at the Agricultural College. Besides the work in beekeeping, ample opportunities will be afforded to visit the other parts of the Massachusetts Agricultural College as well as to visit Amherst College. Excursions will be taken as opportunity and the work may demand. It is usually customary to make a trip to some practical beeyard and queen-rearing establishment. Students returning from this course should be well equipped to handle bees on their own account.

SPECIAL NOTICES

BY A. I. ROBT

"THE DEFEAT OF INJUSTICE."

Here in my Medina home that little tract, "The Defeat of Injustice, or how to be Happy when People Abuse You," has, in consequence of the rush of business, been out of print for a time. Those of you who ordered them and did not get them can have them now if they will kindly repeat their request.

BACK IN MY OLD HOME ONCE MORE.

From now on, the many kind friends will find me here at my old Medina home (the Home of the Honeybees) at their service, with one or more stenographers to give you a helping hand whenever the benefit of my years of experience is called for. Perhaps I had better remind you, however, that of late I have had so little to do with the bee business and the factory that I am not as well posted as some of the younger ones. My one-hive apiary in Florida gave no surplus whatever in 1915, altho it has its upper story well filled most of the time; but it made no surplus in the third story. During the orange bloom this spring they did quite well for a time, and made a little start in the third story; but on account of the most severe frost of the winter, along in March, and a rather severe drouth following, the orange-bloom gave no surplus in our neighborhood. I mention this because so many of the good friends in the North seem to have gotten the idea that *down in Florida* there is *always* honey coming, year in and year out. But the truth is that, while we occasionally have good success, with abundant honey-flows, Florida has its ups and downs, at least in some localities, like almost all the rest of the universe.

We left our Florida home—chickens, garden, and all—on the morning of April 17, and in just about 48 hours from the time of starting we were once more back in Ohio in time to see the apple-trees bloom; but in place of the apple-bloom and the "May flowers," we have been having a series of April showers for about a week.

I have just read my letter (adv. page 21, March 15), and it places me in an embarrassing position. In line 10 you make me say "my grandmother." I don't remember using that word. If I did, it was truly a slip of the pen. I certainly did not intend to use the word, for "grandma" Lincoln Bowman is my nephew's grandmother, my brother having married her daughter. We all call her grandmother—almost everybody—and in that sense I meant it. I very much regret that my syntax was so faulty that it gave a different meaning to my letter than I had intended.

But Anglo-Saxon is not my mother tongue, so there you have it. J. C. SCHAUFLE, M.D.
Colchester, Ill., March 19.

A TRUE STORY OF HOMESTEAD LIFE

How wife and I left our school work and homesteaded 1280 acres of land under the Kinkaid Act. How we bought Government land for \$2.50 per acre when land joining our place sold for \$9.50 per acre. This tells how horses, cattle, and sheep are raised in this vicinity; how to build sod-houses and sand-bucket wells; how we raised 1000 bushels of clover seed. Has eleven illustrations including a township plot giving the number of people, horses, and cattle on each claim; also number of acres of plowed land, etc. The following is the last paragraph from an article in the *Breeders' Gazette*, page 337, of September 2, 1915:

"In the last Congress the grazing homestead bill passed the house by an almost unanimous

vote, and that it will be taken up and passed by the next Congress with little delay and few or no changes, is the general opinion of every man conversant with the situation. With the passage of such a measure the western public land states will undoubtedly see one of the greatest scrambles for land since the memorable opening of Oklahoma. It will positively be the 'last call,' the final offer of free homes, the winding up of the nation's land business, a remnant sale of what is left of our stock of free land. It will be a bargain day for settlers and a case of 'First come, first served.'"

A True Story of Homestead Life sent post-paid for 30 cts. in stamps or personal check. If any one is dissatisfied after reading it he can return it, and we will refund his money.

R. A. Klover, Ellsworth, Nebraska

SPECIAL BARGAINS

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE-HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of both 8 and 10 frame packed single and 5 in a package, which we offer, to close out, as follows: YW 5/8, one story, with frames, eight frame; 8 packages, one hive each, at \$1.75, and 12 packages, five hives each, at \$8.00. The same in 10-frame size, 2 packages, one hive each, at \$1.85, and 3 packages, five hives each, at \$8.50.

NO. 2 OR B GRADE HOFFMAN FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

METAL SPACERS SLIGHTLY DEFECTIVE.

In making the metal spacers for the metal-spaced frames there are a percentage which come out either sheared a little scant on one side, or with slight breaks in the tin where it is drawn up into the spacing-boss. These are hardly passable as perfect stock, but in actual use they will answer every purpose as a spacer. Rather than throw these into the scrap we will offer them while they last, including nails to nail them on, at 20 cts. per 100; \$1.80 per 1000. Transportation charges extra.

1 1/2 H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or, including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1 1/2-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTING OR CHUNK HONEY.

We are offering, while they last, the following bargains in nailed supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

200 D9/10, nailed and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100.

410 D8/10, nailed, and some painted two coats, some one coat; 273 not painted. Sell new for 90 cts.; offered at \$5.00 for 10; \$45.00 per 100.

180 8/10 supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first two lots are the 5 1/2-inch supers with hanger cleats and shallow Danz. frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

ALEXANDER FEEDERS FOR EIGHT-FRAME HIVES.

The Alexander feeder as we now make it is adapted to either eight or ten frame hives. Formerly we

made a shorter length for the eight-frame than for the ten-frame hive. In cleaning up old stock we find 300 of these eight-frame feeders which we offer, to close out, at half regular prices—viz., 15 cts. each; \$1.35 for 10; \$11.00 per 100; \$30.00 for the lot.

TIN COMB-BUCKETS.

While these are listed in the catalog in one line at \$1.50 each, their convenience in carrying combs to the extractor shut up from robbers is not set forth. We have a surplus stock, and offer them, to reduce the number on hand, at \$1.25 each. You can place four Hoffman frames or five non-spaced frames of Langstroth size in each bucket.

JONES HONEY-KNIVES.

This is a form of honey-knife used largely in Canada, and preferred to the Bingham by those who have tried it. The blade is 1 1/2 inches wide, and a flat V or triangular shape. We had a lot made to supply a call we had, and still have in stock 28 of them. We offer them at 75 cts. each. Mailed as a pound parcel when packed.

SHIPPING-CASES FOR 12 AND 24 SECTIONS.

When we discontinued listing shipping-cases to hold 12 sections we still had quite a stock of various styles on hand, many of which are still in stock. We have also some of the older styles of cases for 24 sections of various sizes. We offer these various cases to close out at the following bargain prices. Here is an opportunity to lay in a stock of cases preparatory to the honey crop near at hand at very low prices. None of these cases, except as noted, are large enough to take sections with cartons or corrugated liners, except the bottom sheet. 12-lb. 2 or 3 row cases with 2 and 3 inch glass for the 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, 4x5x1 3/8 sections, packed 50 in a crate at \$4.00 a crate; packed 10 in a crate at 85 cts. a crate. A few crates of cases for 16 sections 4 1/4 x 1 1/2 at \$4.50 per crate of 50 or 95c per crate of 10. A few crates of cases for 24 sections, 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, and 4x5x1 3/8 at \$8.00 per crate of 50; \$4.00 per crate of 25, or \$1.70 per crate of 10. The 12-lb. safety cases, which we no longer list with safety cartons, and 2-inch glass for 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, and 4x5x1 3/8 sections, per crate of 10, \$1.20; per crate of 25, \$3.00. Without cartons, but including corrugated liners and glass, \$4.50 per crate of 50.

IMPROVED CAPPING-MELTER.

The capping-melter illustrated in the April 15th issue is covered by Beuhne's patent issued several years ago, under which we secured license to manufacture. We will furnish these machines made of galvanized iron at an introductory price of \$15.00; or, made of sheet copper, at \$25.00. If these give the satisfactory service we have every reason to believe they will we expect to catalog them in the next edition as "Beuhne's Improved Capping-melter." It would make too long a name to include in it the names of those instrumental in so improving the original Beuhne as to make it so much more satisfactory in operation.

ALSIKE CLOVER SEED.

We still have a number of bushels of alsike clover seed, which we offer, subject to previous sale, at \$10.00 per bushel, with 25 cts. extra for bag to ship in. Any quantity from a peck up at this rate. Lot of two bushels or over, no extra for bags. It will not last long at this price. If you want some, better order promptly.

SWEET-CLOVER SEED.

We have a good supply of very choice hulled white-sweet-clover seed scarified for quick germination, requiring only 10 lbs. per acre for a good stand. We offer this for a short time to reduce stock at \$18.00 per 100 lbs. Now is the right time for sowing with a nurse crop to produce hay or bloom with seed next year. We have also choice hulled yellow which we will sell at \$15.00 per 100 lbs. A thousand pounds of hulled white for shipment direct from Little Sioux, Iowa, not scarified, offered at \$15.00 per 100 for prompt acceptance.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

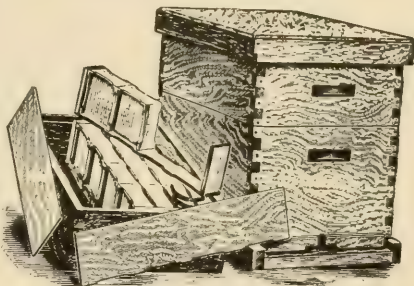
The Double-walled Massie Bee-hive

Surest Protection for Bees---Increased Supply of Honey---the Best Hive for any Climate



The Massie Hive for Comb or Extracted Honey

Furnished in the clearest of lumber, in either Cypress, White Pine, or red-wood; all brood and extracting frames are made from White Pine.



The Dovetailed Hive for Comb Honey

THE VENTILATED BOTTOM admits fresh air into the hive, lessening the chance for swarming, and gives renewed energy to the bees. It is also equipped with a feeder without extra cost. Fifty years in the bee-supply business has shown us that the MASSIE is THE VERY BEST HIVE, and testimonials to this effect are received daily from those who are using this hive.

Why not give us a trial order? Satisfaction fully guaranteed. Early Cash Order Discounts..

We are also extensive manufacturers of DOVE-TAILED HIVES and all other apiarian supplies. If you are in the market for supplies be sure to get our prices before buying elsewhere. We will mail our large illustrated catalog and SPECIAL price list to any one upon request.

KRETCHMER MFG. CO., 1000 3d St., Council Bluffs, Ia.



NEW KEROSENE LIGHT
BEATS Electric or Gasoline
10 DAYS FREE
SEND NO MONEY CHARGES PREPAID

We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it Burns 50 Hours on One Gallon common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. It's GUARANTEED.

Men Make \$50 to \$300 Per Month with Rigs or Autos
delivering the ALADDIN on our easy trial plan. No previous experience necessary: Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 37 lamps out of 31 calls." Thousands who are coming money endorse the Aladdin just as strongly. **NO MONEY REQUIRED.** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. Sample sent for 10 DAYS' FREE TRIAL. We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp FREE for showing it to a few neighbors and sending in their orders. Write quick for 10 DAY ABSOLUTELY FREE TRIAL. Address nearest office.

MANTLE LAMP COMPANY, 302 Aladdin Bldg. CHICAGO; NEW YORK CITY; PORTLAND, ORE. MONTREAL or WINNIPEG, CANADA

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Largest Kerosene (Coal Oil) Mantle Lamp House in the World

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Bee book free

YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be profitable in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the Blanke Bee Book—send for it today.

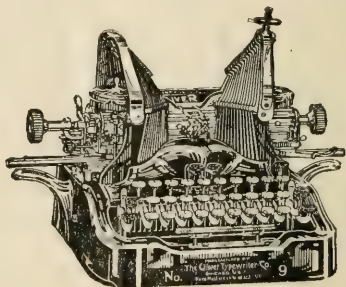
Fine Poultry Book also Free

If you keep poultry too, ask us for illustrated poultry book; full of valuable pointers on poultry-raising as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., ST. LOUIS, MO.

A New Model Typewriter

The No. **9**
OLIVER
The Standard Visible Writer



BUY IT NOW!

Yes, the crowning typewriter triumph is here!

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

Caution!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hand. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

Warning!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows that you want the finest model.

17 CENTS A DAY! Remember this grand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment, and all other new new-day features. Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous **PRINTYPE**, that writes like print, included **FREE** if desired.

TODAY--Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

The Oliver Typewriter Co., Cleveland, Ohio
946 Prospect Avenue

Gleanings in Bee Culture



MYERS

COG - GEAR

PUMPS



Did you ever wish for a pump that would throw more water than your old one which slowly fills the water-pail? MYERS COG-GEAR PUMPS will do it, for they save one-third of the operating power. You can use a larger cylinder and pump three gallons while you were pumping two with the old pump and with no more effort.

MYERS PUMPS are made in the force and lift styles for shallow and deep wells, and for hand and windmill operation. The Siphon Spout, Large Air-chambers, Long Set Length, Adjustable Base, and Non-corrosive Glass Valve-seat are some of the other improvements.

If you use a pump of any kind, write for our Pump Booklet.

F. E. MYERS & BRO.
351 Orange St., Ashland, Ohio
Ashland Pump and Hay Tool Works



DO it before it ruins your crop prospects. Timely spraying will kill off the destructive insects—banish the blights. *Spraying pays.* Save money on your spraying outfit, too. We can save you one-quarter to one-half on any kind of sprayer, hand or power. Look at this one, for instance—

Newcomer Barrel Spray

Can Be Used \$6⁴⁵
With Any Barrel

If you bought it in the ordinary way it would cost you between \$10.00 and \$12.00

For various kinds of spraying—orchards, vineyards, shrubbery or for whitewashing dairies, poultry houses, etc. Double acting—brass nozzles—brass cylinder—brass valves—brass valve seat—paddle agitator. Furnished with 5-foot hose. Built to last for years—guaranteed to give satisfaction.

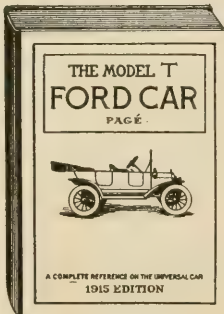
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A New Complete Book for Every Ford Owner, Dealer, Salesman, Repairman



The Model T Ford Car

Price \$1.00 Postpaid

Its Construction, Operation, and Repair

By Victor W. Page

Author of "The Modern Gasoline Automobile," etc.

300 (5x7) Pages; Over 100 Specially Made Engravings, and Two Large Folding Plates

This is the MOST COMPLETE and PRACTICAL instruction book ever published on the FORD CAR. A high-grade cloth-bound book printed on the best paper, illustrated by specially made drawings and photographs. All parts of the Ford Model T Car are described and illustrated in a comprehensive manner—nothing is left for the reader to guess at. The construction is fully treated and OPERATING PRINCIPLES MADE CLEAR TO EVERY ONE. Complete instructions for driving and repairing are given. Every detail is treated in a non-technical yet thorough manner.

This book is written specially for FORD DRIVERS AND OWNERS, by a recognized automobile engineering authority and an expert on the FORD, who has driven and repaired Ford Cars for a number of years. He writes for the average man in a practical way from actual knowledge. All parts of the Ford Model T Car are described.

The illustrated chapter on repairing and overhauling alone is worth many times the price of this book. Special description of book sent on request.

Gleanings in Bee Culture, 1 Year, \$1.00
The Model T Ford Car, . . . 1.00 **Both \$1.50**

Gleanings in Bee Culture, Medina, Ohio

Canadian postage, 30c extra; Foreign postage, 60c extra

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A post card will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight. All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and, packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each

five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

MATANZAS.—Honey is now selling at 45 cents per gallon in this city.

Matanzas, April 24.

ADOLFO MARZOL.

ST. LOUIS.—Our local demand for honey is very light, with ample supplies. Altho quotations remain unchanged since our last letter, they are only nominal. We quote southern strained bright amber in barrels, 5 to 5½; in cans, 6 to 6½; dark, ½ to 1 ct. per lb. less; comb honey, amber, 10 to 12; dark and inferior, 9 to 11; broken and leaky, 7 to 8; fancy clover from 14 to 17; western comb honey in neat clean cases, fancy clover, \$3.25 to \$3.50; bright amber, \$2.50 to \$3.00; under grades less. Prime beeswax, 29½ cts.; impure and inferior, less.

St. Louis, May 6. R. HARTMANN PRODUCE CO.

CHICAGO.—There is very little movement in honey of any kind at the present time. Comb honey drags, and prices are quite uncertain. Extracted remains steady without any change in price from our recent quotations. Beeswax sells at 30 to 32 upon arrival, if yellow and free from sediment.

Chicago, May 3.

R. A. BURNETT & CO.

BUFFALO.—There is some improvement in the demand for white-clover honey. Other grades and extracted are selling slow. Stocks are not heavy, and we think white comb will clean up soon. No. 1 to fancy white clover in sections is selling at 15 to 17; white extracted, 8 to 10; amber, 5 to 6; dark, 5 to 6 if good and pure. Buckwheat, about 7 to 7½. Beeswax, 28 to 30.

Buffalo, May 9.

W. C. TOWNSEND.

KANSAS CITY.—The honey market seems a trifle better on extracted honey, but there is no change in prices. We quote No. 1 white comb, 24-section cases, \$3.00; No. 2 ditto, \$2.50 to \$2.75; No. 1 amber ditto, \$2.75 to \$3.00; No. 2 ditto, \$2.50 to \$2.75; white extracted, per lb., 7 to 7½; amber ditto, 5½ to 7; No. 1 beeswax, 28; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, May 5.

NEW YORK.—There is no demand for comb honey to speak of; and while No. 1 and fancy white are cleaned up, there is quite a stock of off grades still on the market, for which there is practically no demand, and hard to dispose of. The market on extracted honey is in a little better shape, and prices now show an upward tendency, especially on fancy West India honey. Supplies are sufficient to meet all demands. Beeswax is steady at from 29 to 31, according to quality.

New York, May 8.

HILDRETH & SEGELKEN.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: No. 1 per case of 24 sections, \$2.93; No. 2, \$2.70. White extracted, 8½ to 8¾; light amber, 8 to 8¾; amber, 7 to 8. We pay 26 cts. per lb. in cash and 28 cts. in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, May 6.

F. Rauchfuss, Mgr.

ZANESVILLE.—There is no particular change in the honey situation here, the demand being about normal for the season, and prices practically unaltered. In a small way best white comb brings around \$4.00 a case. Some western sells for \$3.75. Jobbers are allowed usual trade discount. Extracted is in limited demand at prices as heretofore, 9 to 10 cts. for best white; darker grades correspondingly less. For good clean beeswax we pay producers 29 cts. cash, 31 trade, and invite shipments on this basis.

Zanesville, May 6.

E. W. PEIRCE.

Watchful Waiting Causes You to Get Left

So Buy your Bee Supplies Now.

Promises to be a Honey year. Ship on day of receipt of order.

Lewis' Beesware—finest in the world.

Send for our 1916 Catalogue.

We do Beeswax rendering. Ship us your old Combs and Cappings. Write for prices.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

STOP! LOOK! READ!

MARCHANT'S FAMOUS 300-POUND BREEDERS are now being bred in Florida during our honey harvest, and every beekeeper knows the best queens are reared during the honey harvest. Our 300-pound breeders are still holding their own.

When you order Bees and Queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from the above famous strain for Queens, Bees, Nuclei, and Full Colonies promptly, or at such time as the purchaser may desire, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. We ask you to give us a trial and let us prove to you that everything we claim for our bees is true. We will ship from Florida until May 20; after that date from Canton, Ohio. Prices as follows:

ISLAND-BRED ITALIAN QUEENS.

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	12.00
Tested	2.00	10.50	18.00
Select Tested ..	3.00	15.00	24.00

Tested Breeding Queens,
\$5 and \$10 each.

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
½-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

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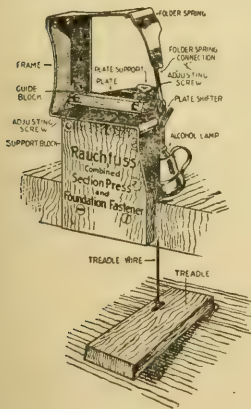
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Gleanings in Bee Culture

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20-30 per cent Discount

Lewis Beeware

Stock contains most of the new things listed, and other standard things used by beekeepers. Here is a few of my reductions while they last:

- Wisconsin 8-frame 1½-story hives . . \$1.50
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- Dovetailed 10-frame No. 1 Supers . . .45

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DEPOSIT BANK CO.**
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Perfect work. We buy your wax at high-
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Issued semi-monthly

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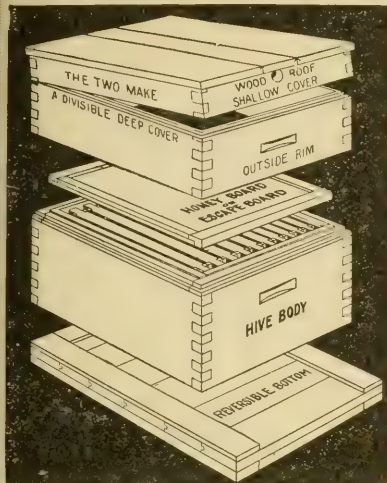
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PROTECTION HIVES

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Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order): Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1916 and let us figure with you.

A. G. Woodman Co., Grand Rapids, Mich.



Established 1885

It will pay you to get our 64-page catalog and early-order discount

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The A. I. Root Co's brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

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For shipment from New York, Philadelphia, or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

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New York Philadelphia Medina, Ohio

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of Honey and Wax

Write Us for Prices when in the Market

BEE SUPPLIES Send your name for new 1916 catalog.
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128 Grand Avenue, Kansas City, Mo.

YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be profitable in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the Blanke Bee Book—send for it today.

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BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., ST. LOUIS, MO.

**Bee
book
free**

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---30 cts. cash, 32 cts. in trade; wax delivered to Lansing.

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
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To order your supplies, and thus
have every thing in readiness for
the spring.

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

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Until You See
Our Catalog

Address

F. A. SALISBURY, Syracuse, New York
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Make This a Lewis Year

While you are starting the year's work—getting your bees ready for business—taking stock of supplies on hand and speculating as to what the season's outcome will be

Make This Resolution

That you will use LEWIS BEEWARE this year—because it means success insurance to you—because it means beehives and parts made of the best material by skillful workmen—because it means goods accurately and systematically packed—because it means sections made of bright lumber, highly polished, accurately dovetailed, and scientifically grooved.

Lewis Hives are Built Like Furniture

Lewis Sections are the Kind that do not Break in Folding

You will find LEWIS BEEWARE almost at your own door—thirty distributing houses in the United States and foreign countries. If you have not one of our catalogs send for copy at once.

G. B. Lewis Company, Watertown, Wis., U.S.A.

Exclusive Manufacturers Lewis Beeware

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department
H. H. ROOT, Managing Editor
E. R. ROOT, Editor
J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV. MAY 15, 1916 NO. 10

EDITORIAL

Our Cover Picture

OUR cover this issue, also the picture p. 396 show Mrs. Susan E. Howard, a Massachusetts woman who has demonstrated that a woman can make beekeeping pay. Besides writing for GLEANINGS, she contributes to some of the popular magazines.

Thru a misunderstanding, we omitted to credit the picture of J. W. Schlenker and his auto, that appeared on our cover last issue, to *Productive Beekeeping*, by Frank C. Pellet. When we received the picture we overlooked the fact that it had already been used by Mr. Pellet. This breach of editorial etiquette was, of course, unintentional, and our apologies are due Mr. Pellet and the publishers, J. B. Lippincott Co.

A Correction

THRU an error we inadvertently made J. L. Byer say in his department in the May 1st issue, that, during the first twenty-four days of March, the temperature in his locality was fourteen degrees below zero. What he really did say was that during the first twenty-four days of the month there were fourteen days when the temperature was below zero. The mistake is our own, and Mr. Byer is in no way to blame for the exaggeration.

Honey-crop Prospects; the Need of Preparedness

THERE has been a heavy flow of honey in Texas, but the season has been a "little off" for sage in California. Prospects in Colorado and other alfalfa districts are good. Clover prospects in this locality, and in most places from which we have had reports, were never better. The indications are the best we have had for years for a favorable season thruout the United States

with the exception as noted. But we have had these "good indications" before. While "there's many a slip 'twixt cup and lip," it behooves every beekeeper to be prepared. There never was a time in all our history when preparedness seemed to be more important than right now in the beekeeping world. Many a crop has been lost because the beekeeper was not ready.

Bees Profitable in Canada

IN an interesting article entitled, "One Man Who Found His Answer in the Soil," which has been running in the February and March numbers of the *Countryside Magazine*, Mr. Justus Miller tells of the experiences of Mr. F. W. Krouse, of Guelph, Ontario, in getting a start in beekeeping. Says Mr. Krouse, "It was with bees that I had the time of my life! With them I have finally been most successful." The net receipts from Mr. Krouse's farm for last season were as follows:

Honey	\$3530.00
Poultry	100.00
Asparagus	500.00
Cherries	200.00
Berries and Currants	75.00
Potatoes	500.00
Total.....	\$4905.00

The bees, as this table shows, produced 72 per cent of the entire earnings of the farm.

Yellow Annual Sweet Clover

ALL the sweet-clovers are honey-plants. Two of them, white biennial and yellow biennial, are common in the greater part of the country; but the small yellow annual variety, *Melilotus indica*, is seldom considered of much value except in southern California where it is grown in orchards as a

cover crop and is used as a green manure to be plowed under before spring sowings.

A short bulletin entitled *Melilotus indica* (Circular No. 126), summarizing facts about sweet clover, and giving directions for inoculation and preparing the seed-bed, has been published by the Agricultural Experiment Station, Berkeley, Cal. It may be obtained free of charge by those interested.

Lots of Reading on Bees

"READ the books on beekeeping" is a frequent word of advice to men taking up the work. Very good; but it should not be carried out literally, of course. The simple fact is that if a man were to read all the books he can read on this absorbing subject he would have no time to do anything else for the rest of his life.

The experts of the apicultural laboratory of the Department of Agriculture, Washington, have compiled a bibliography of all known works on bee culture. The number of books listed up to date is 2295. It would take an entire issue of GLEANINGS to print this list once, assuming that each title took two lines of print.

Besides this list of books the laboratory also has a bibliography of articles and other contributions to the science, much greater in extent. Together with the list of books this numbers 22,440 titles, approximately.

Photographs for Reproduction

SCARCELY a week passes that we do not receive photographs submitted for publication in GLEANINGS that are so poor that one can hardly distinguish the details in the photograph itself. Of course, in the process of making an engraving some of the detail is lost, and in printing there is a still further loss. Consequently, a photograph suitable for reproduction must be very good indeed.

As we have stated before, we receive far more photographs than we can possibly use. Ordinarily, we prefer those which are instructive, or which are necessary to illustrate some point in an article.

Lately we have received several photographs from different parties that were almost ruined by pencil-marks made on the back with a hard pencil, the indentation of which showed on the face of the picture. We always like to have the name and address written on the back of the photograph; but in doing this one should use a pen or soft pencil, and lay the picture on something hard. If a hard pencil is used, and the photograph lies on a blotter, for

instance, every mark shows thru. No writing of any kind, either with pencil or pen, should be done on the face of the picture.

Bee Inspection in Connecticut

IN a small state the problem of eradicating bee diseases is just as important as in the larger states, altho the smaller area to be covered reduces traveling expense so that the cost of inspection can be kept low.

In Connecticut there are two inspectors—H. W. Coley, of Westport, who has the four southern counties, Fairfield, New Haven, Middlesex, and New London, and A. W. Yates, of Hartford, who has the four northern counties, Litchfield, Hartford, Tolland, and Windham. The inspectors have the situation well in hand, according to the report of the Connecticut Agricultural Experiment Station for 1915. European foul brood is the disease found most frequently, altho there is some American foul brood as well as sacbrood. In 1915 a larger proportion of apiaries and colonies were found free from disease than ever before.

A summary of the inspection is as follows:

	Apr.	Col.
Number inspected.....	424	1494
Infested European foul brood....	129	441
Per cent infested.....	26.1	10.3
Infested American foul brood....	4	8
Per cent infested.....	.8	.18
Pickled or sacbrood.....	10	20
Average No. colonies per apiary.....		8.58
Cost of inspection.....		\$746.31
Average cost per apiary.....		1.51
Average cost per colony.....		.175

Favorable Spring for Bees

WHILE the spring is a little late, and fruit-bloom has been delayed, the conditions were never better for bees. With the exceptions noted in our last issue, bees have wintered unusually well. While the spring has been backward it has not been such as to cause serious spring dwindling. In fact, none has been reported. The very fact that fruit-bloom has been delayed by the inclement weather makes it apparent that the bees will have a good chance to get at the blossoms without spells of bad weather shutting them off. When trees come into bloom in April in our locality, it means that the bees may not have more than a couple of hours' work on the blossoms. But here it is May 8. Cherry-trees have just opened, and fruit-trees are just starting. One of our colonies, according to one of the bee-inspectors, Mr. A. C. Ames, has already 15 lbs. of new honey; and others have quite a sprinkling all

thru the hives. This will mean a tremendous boost to brood-rearing, and, in the case of the stronger colonies, swarming.

Short Course for Beekeeping at the Massachusetts Agricultural College

WE desire to call especial attention to the photograph on page 398 of the class in beekeeping at the Massachusetts Agricultural College, while on an excursion to the historic apiary where Langstroth carried on his experiments. This class has proven very popular; and with so good a man as Dr. Gates in charge, it is no wonder. Those who are able to profit by this opportunity should be congratulated on being able to take advantage of such instruction.

A general announcement of this Short Course appeared on advertising page 18 of our last issue. Those desiring to enroll in this class must register early, since the number that can be accommodated is limited. If there is a large attendance the work has to be divided up, making it difficult to handle the students. Fifteen is the preferred number.

"Near" Honey

SOME time ago our attention was called to an advertisement of a recipe for a honey substitute. With our anticipations running high, we sent our five two-cent stamps and received the following, written in pencil:

"A good recipe for an article resembling honey, but not honey, is made by taking glucose and reducing it to the consistency of strained honey. When cool, add one dram of pot. alum to the gal., first dissolved in a small portion of the dilute glucose. Add a small portion at a time of rose flavoring extract until the mixture has the right flavor."

We wonder what the "right flavor" would be in this case. Probably the first small portion would give a flavor about right for clover or sage honey, the second for basswood, third for aster, and so on up to buckwheat. We wonder how many more small portions would have to be added to make chincapin honey!

Beekeeping in the South Atlantic States, Again—a Correction

A CORRESPONDENT, referring to our report of Dr. Phillips' address in our April 1st issue, page 259, regarding box-hive beekeeping in the south Atlantic states, complains that not all the beekeepers in this portion of the country are in the box-hive

class—that there are many progressive and up-to-date beekeepers there.

It is but fair to say that Dr. Phillips in his address at the Chicago convention went on to state that some of the best beekeepers in the country were located in that portion of the Southland, and that what he was about to say represented only those beekeepers up in the mountain districts and other portions of the state remote from towns and cities. The omission, therefore, was no fault of Dr. Phillips, but, rather, our own. Our apologies are due, therefore, to our correspondent, and to Dr. Phillips in particular.

Locating Outyards; the Importance of Shrubbery or Trees

AT this time of the year many outyards will be located; and it is important to place them where the individual hives will be screened from each other. When all the hives are placed out in the open, every hive is in plain view of every other one, cross-bees are more inclined to follow their owner all over the yard. Experience has shown over and over again that an outyard of bees located in the midst of shrubbery will be comparatively tractable, while the same yard of bees, when put into an open yard may become cross.* The reason of this is very plain. When the operator or the hives are screened from general view these stray angry bees lose sight of the operator as he moves about, with the result that he can work all day in quiet without a veil, and with very little smoke. It is probable that the vision of bees at close range outdoors is not very good; at all events, it is very easy to dodge them. We have frequently, when followed by angry bees, merely stepped behind a bush or a tree, and then gone on to another portion of the lot unmolested.

Of course, it is not always practicable to locate apiaries in favorable spots, and one is compelled to take what he can get rather than what he would like.

In locating one or two hives in a back lot in town, it is important to place these hives where the bees do not get a general view of the entire premises except as they fly up to go to the field. When out in quest of stores they are usually very quiet and gentle. Trouble between neighbors can very often be averted by so placing the hives that the surroundings will be of the character we have described.

* Over and over again we have discovered that the same bees that were gentle at the home yard, where each hive is behind a trellis of grapevines, would often be mean to handle at outyards placed out in the open, where every hive is in view of the other.

Self-Sterility of Sweet Cherries; the Value of Bees as Pollinators

THE following from the *Fruit Grower* of St. Joseph, Mo., April 1, 1916, is both interesting and valuable. Statements of this kind are not prejudiced in favor of the bees, hence are of all the more value.

It has become more and more apparent during the past few years that a number of varieties of sweet cherries grown commercially in Oregon failed to bear, from no apparent reason. This seeming mystery has attracted so much attention that finally it was decided by the state experiment station authorities to make some experiments to determine the cause, if possible. The first of these experiments was undertaken primarily for purposes of breeding tests, and the results obtained pointed so clearly to self-sterility that they were continued with the idea of testing the latter condition, rather than as a further breeding trial.

The experiments were conducted, both at The Dalles and Corvallis, with quite similar results in each case. It was found that for all practical purposes Bing, Lambert, and Napoleon (Royal Ann) were self-sterile. Cross-pollination was then tried, and they were found to be also inter-sterile. The fact which at first seemed to be somewhat mysterious, that this lack of fertility in the blossoms was apparently only of recent occurrence, was finally explained by noting that practically all the solid blocks of any size had been planted within recent years, and that the older orchards contained a greater number of varieties, including a few seedlings in most cases.

The most careful tests were made during three years, and the following conclusions were reached: It is necessary to set a number of varieties together in order to insure pollination that will produce a profitable setting of fruit. If there are a few trees of Black Republican, Black Tartarian, or even seedlings near the Bings, Lamberts, or Napoleons, they should be allowed to remain, and if necessary a few trees may be top-worked to these varieties in order to provide pollinators. If nothing better can be done until these latter can be secured, a number of large branches of these known pollinators may be cut and placed thruout the orchard in pails or kegs of water, just before the blossoms open. While this will not be likely to give a maximum crop of fruit, yet the results will probably be such as to make it profitable.

Probably about one tree in every six or eight, scattered thru the blocks of Bing, Lambert, or Napoleon, will be sufficient for the purpose of pollination. It should be remembered that the three varieties named are inter-sterile, as well as self-sterile. This means that they will neither pollinate themselves nor each other. Their pollen is not of itself sterile, for it will fertilize a num-

ber of other varieties, but is neutral when applied to any of the three named.

The method of fertilizing by means of seedling branches cut off and placed upright in receptacles of water thru the orchard, was tried by one grower in 1914, and the yield of his trees was increased to three times what it had been previously.

The importance of bees as agents for the dissemination of pollen cannot be over-emphasized. In the case mentioned a number of swarms of bees were placed thruout the orchard along with the seedling branches at blooming time. No matter what other favorable conditions are present for cross-pollination, it will not be effected unless bees or other insects are present to carry the pollen from tree to tree. There is no doubt that many cherry orchards that are now shy bearers could be greatly improved by the introduction of a number of swarms of bees.

As pollinators for the Bing, Lambert, and Napoleon, the Black Republican, Black Tartarian, and Waterhouse take first rank, but Elton, Wood, Coe, Major Francis, and Early Purple were also found to be good, altho somewhat variable in their results.

At least some of the sour varieties of cherries are capable of pollinating the sweet cherries. The ability of a variety of cherry to set fruit is not altogether dependent upon pollination. Soil and climatic conditions are also factors in the case. While, so far as we know, no experiments of this character have been made in the Middle West, it may be worth while to investigate along the lines mapped out by the Oregon station.

An Unfortunate Theory; More Proof Needed

PROF. H. A. GOSSARD, Entomologist of our Agricultural Experiment Station, Wooster, Ohio, and one for whom we have a regard, has just issued a bulletin entitled "The Role of Insects as Carriers of Fire-blight." Since he attempts to prove that the honeybee is eminently injurious in spreading this disease, we desire to examine his arguments. In doing this the editor admits, of course, his prejudice in favor of the bee; but it is obvious that any attempt to incriminate the bee should be backed by proof; and in our opinion Professor Gossard has come short in furnishing such proof.

He begins by quoting extensively from a paper by Prof. M. C. Waite, of the Department of Agriculture, read before the National Beekeepers' Association (32d annual meeting, Buffalo, New York, September, 1901), in which this author gave his evidence that the honeybee can and does carry blight. The editor remembers this paper well, because he had the pleasure of

presiding at the National when this was read. The evidence presented by Professor Waite has been accepted by the beekeepers as conclusive because of its thoroughness. He called attention to the fact that flies, wasps, and other insects swarm over the exuding sap on hold-over cankers, and fly to the opening blossoms. So far we have seen no evidence that bees do this, the only previous claim of their part in carrying the disease being in conveying the blight organism from blossom to blossom.

Professor Gossard admits that weather conditions of the past few seasons in Ohio have encouraged the multiplication of aphids in early spring, and that these must play a large part in starting off the infection early in the season. He does not indicate why he thinks them instrumental simply in "starting off" the infection. Prof. J. H. Merrill, of the Kansas Agricultural Experiment Station, showed in a paper published in the *Journal of Economic Entomology*, August, 1915, Vol. VIII, p. 402, that a control of aphids by spraying with "Black-leaf 40" practically eliminated blight in Doniphan County, Kansas. Similar results have been obtained elsewhere. While other entomologists are rapidly vindicating the bee, our Ohio entomologist seems to be working on another line.

Professor Gossard also quotes from an article which he intends to publish in the *Journal of Economic Entomology*. In this he has proven the following points: The bacillus which causes fireblight has not been found in old honey in early spring nor in fresh apple honey, altho in one hive the bees were certainly working on blighted blossoms. When the bacteria were artificially placed either in sterilized or unsterilized honey, they lived for nearly two days, and it would seem that they are finally killed in honey, altho this is not clear in the paper. There is no reason to believe that they grow in honey, altho he thinks this might be possible.

These facts should satisfy any prejudiced defender of the bee, to whom Professor Gossard jokingly gives the name "bee monomaniac." Unfortunately the rest of the paper contains "inferences," "presumptions," and phrases like "it stands a good chance," "inferential evidence," and similar expressions which might lead one to believe that he is anxious to prove something on the bee. He even says, "In an attempt to connect definitely the hive," and in another place, "the direct evidence we are seeking, i. e., to prove the hive an infection center," are expressions which do not indicate the right scientific spirit. Bee-

keepers will not deny proven facts derogatory to bees, but we candidly are not in sympathy with attempts to secure proof to bolster up a preconceived idea.

Professor Gossard evidently thinks that the reason blight spreads so rapidly is that the bacteria are carried to the hive, accidentally distributed among the bees, and then carried out to thousands of blossoms. Evidently, if this is true the bee is more harmful than any other insect. Since he has no proof that this is the case, and since he never found the bacteria in the hive, the theory is as yet pure speculation.

The nature of the inferences will be evident from the following quotation: "We believe we have proved that if one bee carries 100,000 bacilli into the hive one day, that on the following one or two days each of 1000 bees has the possibility of carrying a considerable fraction of 100 virulent bacilli out to fruit-blossoms, because practically all the bees in the hive are at work during the night curing the honey." In reply to such speculation, let us speculate also that by the next day over nine-tenths of the contaminated honey is already eaten and digested, and surely Professor Gossard will not assume that the bacilli are filtered out. The rest is stored so that, while a bee may be contaminated, a "considerable fraction" of the organisms will have ceased to trouble the fruit-grower. It is very seldom that any fruit-bloom honey is stored. At that time of the year brood-rearing is nearly at its height, and practically all of the nectar gathered is used immediately. So far Prof. Gossard has not found the organism in the stored honey; and even when he introduced it artificially it did not live. His evidence is negative so far.

It would be possible to go thru the paper and point out many unproven suppositions and what appear to us to be unscientific conclusions—even in the face of the facts which are actually helpful to the beekeeper's estimate of his bees. The author says, "My purpose in investigating the hive has been solely with the object of emphasizing the need of cutting off the supply of blight organisms before they reach the hive." We could wish that his object had been solely to find out what part the bee and other insects play in carrying fireblight, and that he had carried out his investigations with a more open mind, and let the truth come where it may instead of putting himself in the position of "an attempt to connect definitely the hive." We hope, however, that he will not drop the problem until he has found out how much truth there is in his theory.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



J. L. BYER, p. 349, says sweet-clover honey is very much inferior to alsike or white clover. May be, if pure. Here it gives a vanilla flavor to clover honey that is delightful. Too much of that flavor might be objectionable.

R. F. WIXON, p. 363, when settled weather comes, swaps an outside brood for an inside one, repeats it a week later, and in another week puts an empty comb in the center of the brood-nest. Now, I wonder what makes the difference; is it locality, bees, or what? If I should do that it would give a bad set-back. For the bees of themselves have all the brood they can cover, and spreading can cause only delay, unless it be chilled brood. Are there some bees that fail to have all the brood they can cover unless their combs are spread?

WHEN J. E. Crane finds a colony with larvæ in queen-cells, and the queen is old, he removes her and kills cells, kills them again 8 days later, and 8 days later still gives a virgin, p. 359. That leaves the colony 24 days or longer without egg-laying. I wonder if that time might not be safely shortened. How would it do to give a laying queen instead of a virgin? That makes only 16 days without eggs. Allen Latham, p. 363, gives a ripe cell at removal of queen. But he does that before cells are started, and sometimes the colony swarms later. I have generally had success by caging or removing the queen, killing cells at the same time, killing them again ten days later, and freeing or returning the queen. If a *young* queen were given in place of the old one at the end of the ten days, not one in a hundred swarmed.

I've always said that beekeeping could never be on a stable footing so long as there is no law against planting another apiary right beside you. In some of the states of Australia you can make sure that no one shall have an apiary within two miles of yours by paying annually about \$20.00. Worth it, too, isn't it?

Later.—Since writing the foregoing, comes GLEANINGS, May 1, in which J. L. Byer says, p. 349, he never expects there will be on this continent a law defining where a man can plant an apiary. Why not? Aren't there just as good brains here as in Australia? And if satisfactory restrictive laws can be made there, they can be made here. All that is needed is for beekeepers to say they want such laws.

Some day they will; for it is not for the interests of either producer or consumer to have beekeeping such an insecure business. I'm satisfied that there are now three times—may be ten times—as many beekeepers as there were forty years ago, who would like to see beekeeping on a solid basis.

GARDNER B. WILLIS, p. 156, describes what is undoubtedly the work of the larvæ of a bee-moth, a much smaller affair than the common bee-moth, *Galleria mellonella*. A cluster of three or four bees, fully matured and fully colored, will be seen constantly wriggling in their cells, unable to get out. Dig down to the bottom of the cells and you will find the small larvæ of what Cook calls the "Wee" bee-moth, *Ephestia interpunctella*, and Sidney Olliff, in A B C and X Y Z, calls the lesser bees-wax-moth, *Achroea Grissella*. I've seen it but a few times in my life, and I think it amounts to little in this region, altho it may be worse elsewhere.

AN Illinois correspondent had a strong colony in a two-story ten-frame hive (20 frames in all) which went into winter with 78 to 80 pounds of good honey by actual weight. March 14, flew strongly; April 1, all dead. No honey in upper story; 45 pounds in lower story; combs clean; all bees (about 10 quarts clinging closely to combs, even to those in lower story which had honey in them. Query: What was the trouble? A plain case of starvation. The cluster was in the upper story, and when the honey in that was consumed it was too cold to leave the cluster, and the honey in the lower story might as well have been a mile away. But how about those bees that were on the combs of honey below? When a colony starves, some of the bees in their death-struggle crawl away from the cluster, apparently only desiring to die elsewhere, and may be seen hanging in peculiar fashion to the entrance and front of the hive. In this case they had strength only to get down to the sealed honey, but no strength to get the honey. Likely enough the disaster might not have happened if in the fall the two stories had exchanged places. [We do not know why this is true; but bees when starving will separate themselves from the main bunch in small clusters. We have observed this time and time again in bees that have come in combless packages from the South. If the candy has run short there will be little bunches of bees detached from the main cluster.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



HOW THE BEES HAVE WINTERED.

Bees have generally wintered well here in western Vermont, altho March was the coldest known for thirty years. I notice that bees almost invariably winter well after a good season.

I am greatly interested in Mr. Byer's whopper colony of bees he mentions on page 267, April 1. We hope we may hear from it again, and that the capacity of the bees to gather honey will be as great as the fecundity of the queen.

I am glad Prof. E. G. Baldwin, of Deland, Florida, is to test thoroly the question of bees in fertilizing the flowers of the orange about Deland, and settle, if possible, the value of bees in orange-groves in Florida. I believe that, as we study this whole subject, we shall meet with many surprises.

Mr. Doolittle gives his opinion on page 268, April 1, as to the best bees. He says that queens of one or two generations from imported leather-colored queens crossed or mated to drones in no way related are the best for extracted honey; while for white comb honey there is nothing better than the golden Italians. How about the wonderful improvements some breeders claim to have made?

One is reminded of the size of our country and variety of climate from Mr. Scholl's statements on page 223, March 15, when he informs us that in Texas it is the proper time to clean up beeyards as well as beehives, while here in Vermont the snow was two feet deep on a level, and many of our hives were entirely out of sight under snow-drifts and the mercury playing about zero.

Mr. P. C. Chadwick's notes on the navel-orange blossoms, page 264, April 1, are of special value in the discussion of the value of bees in the fertilization of fruit-blossoms. It shows very conclusively that bees are quite unnecessary, and cannot in any way be helpful. The surprising thing about the navel orange is that it should grow so large and be so perfectly developed without producing seeds. There are several varieties of seedless grapes, but so far as I know they are, without exception, all small.

Mr. Doolittle's experience and experiments as given on page 226, March 15, add to our evidence that European foul brood is not transmitted from hive to hive thru honey. This is a most important matter as bearing on the necessary treatment of diseased colonies. What we want to know further is whether this is *always* true, or does honey from a colony having European foul brood sometimes transmit disease? What we want is facts, not opinions or theories.

Don't forget the postage-stamps, says the editor, page 218, March 15. Of course it is forgetfulness; but it seems sometimes almost inexcusable when a stranger asks you to take time and paper to answer his questions, and then forgets to pay the postage. I received a letter from a gentleman a few days ago asking for some information, and he enclosed two stamps, and then wrote me a note thanking me for what I had done for him. We all love to be appreciated.

On opening hives this spring in early April we found an unusual amount of brood, notwithstanding an unusually cold March, and we almost instinctively ask how this can be. One reason is that most colonies went into winter quarters strong in bees. Another is that the excessive cold of March was favorable to brood-rearing. Dr. Phillips tells us that, when the temperature outside of a cluster of bees gets below 57 degrees, the temperature inside of the cluster rises. I have found a summer temperature inside a cluster with mercury below zero outside the hive. So it would seem that bees have bred freely during the cold month of March.

That picture of Mr. Chadwick's yard, page 184, March 1, took my eye. I have often wished I might visit him, and now I can look on one of his yards. How true and level the hives stand! and those great hills or mountains in the rear! How easy to wheel the honey to the house! And then that class of beekeepers at the Ontario Agricultural College! How we wish we could have been among them, for we are never too old to learn! Again, I see the home and workshop of H. B. Phillips, page 204, of Auburn, Me., with whom we have transacted business for many years. He does a large business in selling comb and extracted honey, altho he is totally deaf.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



A very practical and successful beekeeper recently made the remark that old black combs are breeders of disease, and that it is next to impossible to eradicate disease when using them. With new combs he claims the work is half accomplished before beginning.

A California beekeeper of some prominence once said: "The bee business is the most hopeful business of any and all businesses." He was right. Honey cannot be measured on prospects of the season. But hopes remain when reason seems to have fled.

I have just extracted nearly two tons of the finest orange honey I have ever been able to secure. Had this immense flow, with the unprecedented good weather during the orange-blooming season, been one month later, it would have been an easy matter to secure five or six tons.

In a recent letter from Mr. Doolittle I am informed of his severe illness with heart trouble. It is to be hoped that his condition may improve, and that we may yet enjoy reading many pages of his work in the columns of GLEANINGS. Mr. Doolittle, to my notion, is one of the few *very able* writers of his day.

At this writing the season appears to me as one that is to be full of disappointments as to final results. The hoped-for late rains have failed to appear, with the result that the button sage is not yielding as was expected, and the chances for the flow from the later-blooming plants diminishing as the bright sunshine daily takes its toll of moisture from the soil.

In viewing the list of officers of the United Honey-producers of America, one is led to wonder if it is not really an Indiana concern, and inclined to favor Indiana producers. It seems to the writer that it is a poor policy to expect a heavy following with an organization so centralized. That has been tried in our state. It is impossible to amalgamate the interests of beekeepers even in a state like our own, with all of the officers in one end of the state. With a national organization the task is even great-

er. [We believe the plan is to have a vice-president from each state.—Ed.]

After thirty years among the bees I have experienced what I call a disastrous honey-flow. How can a honey-flow be disastrous? A few months ago I could not have believed that such a condition would in any likelihood arise, but with me it did. In my notes I have pointed out from time to time the winter conditions in this state. Our winter, as will be remembered, was one of extremely heavy rains, and more than the usual amount of cold, at times with snow. The rains stopped abruptly, and gave way to an unusually early and warm spring. On March 1 I think I never saw my bees in a more promising condition, and the work of my young queens was all that could be asked for. Two weeks later the orange began blooming in earnest, and the flow of nectar was never greater. The results were that, within a period of ten days, my queens were blocked with honey and nectar, and relieving the situation seemed to be an impossible task. There were few colonies at that date that were ready for storing nectar in the supers; for, indeed, the bee force was lacking to perform the work. The nights were cold, as is always the case at this time of the year, and the nectar was placed close into the brood-nest. In this manner the work of the queens was stopped abruptly. To place dry combs in the brood-nest was of no avail, for it was immediately used to hold the onrush of nectar. To place foundation in the brood-nest gave very little aid, for in the greater number of cases there was not a sufficient number of bees at that time to draw it readily; or if it was drawn it was in most cases filled with nectar before the cells were half drawn. The disastrous feature of the situation was in the fact that brood-rearing seemed to have been forgotten in the mad rush to the orange, and even the cells where brood was hatching were promptly filled with honey. A more exasperating situation could hardly be imagined. Here was a wonderful flow of nectar, with too few bees to store it in the extracting-supers, so it was literally drowning the life out of the colonies. Had the flow come a month later it would have been one of immense value, and the results could have been only for the best; but as it was, the bee force for later work became so curtailed that the results of the season for me have become doubtful.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



THE BEE FLORA OF FLORIDA.

I venture the assertion that no other query is so often propounded to me, by letter and by word of mouth, as this, "What do my bees gather mostly in Florida? and how shall I get them in best condition for the honey-flow?" With the hope of being of real service to the inexperienced, in our own state and possibly answering the unspoken inquiries of some outside of our state who may be looking with longing eyes to our borders, and who wish to know the sources and methods best adapted for those honey-flows, I purpose to give soon a short series of suggestions on the bee flora of Florida, with a practical end in view. I shall try to follow, chronologically, the order of blooming of the various sources of honeys, and detail, not too fully, methods that have been found practicable, and mainly successful for each source of honey in the various sections of the state. I might add right here that by reference to p. 175, March 15, 1911, a map will be seen showing the state to possess six main sources of honey—that is, surplus honey—honey in sufficient quantities to find its way into the markets of the country. These will be seen to include the region of tupelo, the partridge pea, and chanquapin, the orange section, the palmetto (saw and cabbage), and the black mangrove, with the very limited area of the manchineel in the southeast. I ought, probably, to include pennyroyal, tho it has not been important, commercially, till recently. I am told it was formerly very important, being first discovered, if I recollect aright, by that pioneer, O. O. Poppleton, near Tampa. He it was who first called the attention of beemen to this member of the mint family, and its importance to beemen, away back in the '80's. Latterly it is assuming more prominence. More of this later. Its best area is south of Tampa, probably south of Bradentown, and across the state, east and west, from about Bradentown, including most of the high pine lands south of that imaginary line.

WONDERS NEVER CEASE.

This year the orange bloom made me feel a perfect ignoramus in Florida seasons and sources. For sixteen years I have not known orange honey to be stored in surplus chambers after April 10. Mark well. Here it is the 23d, and bees are working harder on orange bloom than they did in the middle of March, our usual flood season for that

honey; and that, too, after practically a week's cessation altogether. I was facing a total failure, in fact. All beemen in orange sections had made up their minds to a failure. The bloom was so scant, to use a Cracker term, "It was the sorriest bloom since the freeze," and cold, during even that little bloom. No wonder we got no honey. And now, after a little rain, but mostly after genial and warm weather, the tardy growth of new sprigs is appearing, and in many instances these new growths are covered densely with little buds or "pinheads," we call them. Many are opening and yielding right now, and bees are storing in supers right along—not rapidly, yet, but more every day; and these new blossoms will be opening more and more for two or three weeks. I see no reason why half a crop, perhaps, may not still be secured in favored locations, and a fourth, perhaps, in most orange sections. That is better than nothing. The bees work well in the mornings. The yard roars as in the midst of swarming-time. About ten o'clock there is marked diminution, due to the heat and drouth combined, which dries up the nectar in the blossoms; but about two or half-past, in the afternoon, they begin again, and about four the yard is alive with flying bees again that continue to fall, weighted and weary, on the alighting-board till long after sunset. I had taken my hive off the scales, but have placed it back on, and am looking for some interesting data. More later. It is going to make our extracting come in May, tho, instead of April, as usual. You can imagine what splendid opportunities this gives us to requeen. I have practically requeened my entire home yard, and am going at the outyards now. Breed—I never saw anything like it—easiest thing in the world to get cells as long as the last joint in my middle finger, and, best of all, no swarming. Dr. Phillips, tell us why. I want to say more later about this swarming. We are getting some interesting data along that line this year. I have known of only two swarms in the county thus far this spring.

Book-keeper, Beekeeper.

While my duties as individual book-keeper in a bank keep me very busily employed I manage to secure some 3000 lbs. of honey each year from sixty colonies of bees. Many colonies give me 100 lbs. or more of surplus.

Pine Bluffs, Ark.

J. E. Clarke.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



A MARCH HONEY CROP.

Contrary to our expectations, on account of the drouthy conditions early in spring, the mesquite bloomed very profusely, and almost a month earlier than usual. The mesquite ordinarily blooms in April in south-central Texas, and again in July, in favorable years. This year the colonies were hardly strong enough to harvest the mesquite honey—at least in the fore part of the blooming period. As it lasted longer than the three weeks, however, the bees increased rapidly on account of the large amount of brood when the flow began.

Another obstacle was the coolness of the nights and early mornings, and the many days of high winds that interfered greatly with harvesting a good crop. An average of 35 pounds, half comb, the rest extracted honey, is about the quantity our own bees succeeded in storing.

FORCING HONEY INTO SUPERS.

This spring afforded us a most convincing experience in favor of a divisible brood-chamber. When the early honey came it did not take long for the bees to block up the upper portion of the brood-chamber with honey, and seal it. This soon crowded the brood-nest to a mere handful of brood, and also kept the bees from doing the best work in the supers above, on account of their dislike to work above sealed stores and far from the brood-nest.

Here was the same old condition of nearly twenty years ago, and for which reason I adopted the divisible hive. What did we do? When supering time arrived, and we discovered this condition of the hives, we did not place a single super on a divisible hive before first “switching” the two halves of the brood-chamber. We proceeded in this manner: We worked in forces of two men, one armed with smoker and hive-tool, for smoking the bees and prying the hive sections apart. The other then first lifted off the shallow extracting-super on the hive, setting it aside. He next lifted the upper half of the divisible brood-chamber and held it while the former, after smoking the bees as needed, lifted off the lower half, and set it on top of the former upper half that had been rapidly placed on the bottom-board by the assistant who held it ready for this purpose. Thus the two halves were completely reversed or interchanged. The objectionable sealed honey was now below, from which place the bees would remove it.

The biggest part of the brood was thrown right up to the top of the brood-chamber.

The new super, with foundation in full sheets, was then set on the newly changed hive, and the shallow extracting-super, more or less full of honey at this time, replaced on top of all, and the bees went right to work and yielded results over the loafing colonies of deep-frame hives that could not be thus easily manipulated. This manipulation, which is accomplished very rapidly, also stirs the colony into new life and activity. I have claimed that it “stirred new energy into the bees” when that question was up for discussion some time ago.

That it “knocks swarming in the head,” as I have often claimed in these columns, there is not the least doubt in my mind. Besides putting the colonies to work, and where we want them to work, the new cell room provided in the center of the brood-chamber affords plenty of laying room for the queen and consequent contentment of the colonies. The combs were, before the change, more or less devoid of brood or honey next to the bottom-board. When placed above in the changing of the two halves of the brood-chamber this empty comb room came in the middle of the brood-nest. The bees removing the honey from what were the former objectionable sealed combs of honey above, but now below, also provided additional laying room. In fact, an entire reorganization of the brood-nest took place as well as of the whole colony, and that with excellent results. I cannot obtain them with the deep hives scattered in most of my apiaries.

MORE UNIFORM QUALITY AND BETTER PRICES.

There has been some complaint on the part of a good many beekeepers in regard to the low price of honey in comparison with other products. It has been a source of pleasure to me to have been so situated as to be enabled to look into such matters, perhaps, a little more thoroly. This opportunity has revealed that there are several causes in addition to supply and demand that have to do with the regulation of prices of any product.

During the last few months I have had an opportunity to observe the many varying methods of packing for market, not only bulk comb honey but extracted as well. Out of over fifty lots of honey observed during the last several months there were not two packed alike. There was also an exceedingly great difference in the flavor

and quality of the honey. Not any of it was packed according to the standard fixed so deeply in my mind.

In my opinion, a ruling of higher prices than we have been able to obtain need not be expected until there is a much more uniform method of packing the honey for the market as well as a more uniform grading. "Honey is not honey," as it used to be when the market was less educated. There is always a good demand for a better quality of honey, while the poorer kinds have to hunt for a market. But this is not all. The poorer grades affect the market materially in "pulling down" the price of the better grades. That is why we suffer from prices lower than they ought to be, even when the supply is not so large. Here is work for our organizations to spend a good deal of time on during this year, and before the new crop is ready for market.

THE PROPER TIME TO MOVE BEES.

I have tried to ascertain for some time whether there is any material difference in the time of winter or early spring moving of bees, and the effect upon the colonies of bees themselves.

In moving bees to new locations I have observed that those which are transported very early in the year or during the winter before any brood-rearing had begun to any extent continue in fine condition throughout the entire year. Apiaries that are moved somewhat later, with brood-rearing already well under way, but the weather yet quite changeable, and very cool nights predominating, seem to be more or less affected by the move according to the time and weather conditions prevailing. Later moves of bees to new locations, after the weather becomes more settled, altho brood-rearing was further advanced, apparently escape the bad results. It is apparent that there is a difference in the welfare of apiaries of bees moved at different times of the season and in different stages of development of the colonies as well as a marked difference in the honey yields.

Is it possible that colonies moved after brood-rearing has advanced to a certain degree, with unfavorable weather conditions still prevailing, may not be able to take care of the brood as properly as to preserve the welfare of the colonies? Is it possible that the disturbance causes not only the brood to suffer materially, but the old bees as well? The bees wintered over from the preceding season are becoming older from day to day, and dying off rather rapidly. The nurse bees are not of the proper age for best results. It is difficult, too, with bad weather conditions, to get water and fresh pollen; and even with a supply in the

hives, the cool weather is not very favorable for rapid progress in brood development; and the decreasing number of bees apparently often have a difficult time to keep the slowly increasing brood-nest warm. The colonies are in a critical condition at this moment, and the least disturbance must have an effect upon their welfare. Is it not possible, then, that this is not the best time to disturb them by subjecting them to the severe test of moving to new locations?

It seems that, in the event earlier moving is not possible, it is better to wait until settled warm weather has arrived, and the colonies have had an opportunity to build up in numbers so that the brood can be better cared for. Under such favorable conditions there need be no bad results. Our experience has proven, in addition to the above, that colonies moved later, especially just before a honey-flow, show increased vim and vigor, and yield more excellent crops of honey than those not disturbed. It seems that the shaking-up of the colonies at this stage of development stirs them to greater activities.

The Guadalupe Valley Beekeepers' Association is a new district organization launched recently at Seguin, Texas. Guadalupe, Comal, and Hays counties are at present in this district, with adjoining counties to come in later. Jon. Donegan, Seguin, is President; John Herbold, Seguin, Vice-president for Guadalupe Co.; H. Franke, San Marcos, Vice-president for Hays Co.; Herman Oelckers, New Braunfels, Vice-president for Comal Co.; Louis H. Scholl, New Braunfels, Secretary. A vice-president from each county is provided for in order that the counties may all have proper representation on the executive board.

Besides the business of organization, there was other discussion on beekeeping subjects, making an interesting gathering. Much enthusiasm was shown by those present. Regular quarterly meetings were decided upon, besides occasional outings and picnics and field days. Except for an initiation fee of one dollar there will be no dues. Funds, if needed, will be raised by a nominal assessment of the members.

Prof. Paddock, State Entomologist, of College Station, was present and addressed the meeting on the foul-brood work and the importance of beekeepers organizing themselves for the purpose of obtaining the appointment of apiary inspectors. The district inspector of the new organization is John Donegan, of Seguin. A standing committee on program and entertainment, and a committee on bee-disease eradication is also provided for.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



NATURAL SWARMING.

"I am aware that the older beekeepers work mostly for the prevention of swarming; but many of us beginners like to see swarms issue, and learn some of the ways in which these swarms may be worked so as to secure a fairly good return in honey. When may prime swarms be expected to issue?"

Prime swarms may be expected when the first queen-cell is sealed over; but sometimes they come soon after the first egg is deposited in an embryo queen-cell. Some idea of the situation can be had by looking at the entrance of each hive about ten o'clock in the forenoon at the beginning of the white-honey harvest, or a little before. Colonies that are at work strong at this time of the day, and that cluster out at the entrance and fan their wings near sunset, may be expected to swarm soon.

Most prime swarms issue between 9 A. M. and 2 P. M. So few will issue outside of these hours that it hardly pays to keep close watch for swarms at other hours.

"I am told that swarms very often run away. If this is so, how can it be obviated?"

The absconding of prime swarms can be almost certainly prevented by clipping the wings of the queens previously. This is most conveniently done about the middle of May, at which time the fruit-trees are in bloom. At this time, at about 10 to 12, the larger part of the bees will be out after honey, and the queen is more easily found among the limited number of bees. Moreover, there is no danger from robber bees making a raid on the honey while we are looking for the queen.

Some cut only one of the wings on one side the first year, the other wing on the same side the next year, then one wing on the other side the third year; and, if the queen lives that long, the remaining wing the fourth year. In this way the age of any queen is kept trace of. However, most apiarists cut about half of the two wings on one side, which entirely precludes the queen from flying. Some take hold of all the wings in picking the queen up, and cut all of them off about half way up to the thorax. Those who practice this, claim that queens so clipped are very easily found when it is necessary for the apiarist to look for them.

A clipped queen runs out with the bees

just as tho she had her wings; and as she cannot fly she goes anywhere from two to ten feet from the hive on foot. Generally a dozen to fifty bees will gather about her after she ceases trying to go further on foot; and as soon as the swarm misses her they will return to the hive from which they came, running in with fanning wings. This generally attracts the few bees gathered around their queen, when, if the hive is near the ground, so that bees on foot can reach it, the bunch of bees set forth with fanning wings, and they and the queen return with the swarm, so that not one queen out of ten gets lost, even if the apiarist is not on hand to oversee things. When he is, he can soon find the queen, let her run into a small wire-cloth cage, and lay her at the entrance of the hive from which she came. Then when the bees return, and most of them are in the hive, the cage is opened and the queen allowed to run in. Of course, unless the queen-cells are cut they will swarm again the next day. Sometimes, even with the cutting of all cells, the swarming fever keeps on; so the better way is to set the old hive on a new stand as soon as the queen is found, or before the bees start to return, and put a prepared hive on the old place with the caged queen at the entrance. Then when the bees return they will hive themselves; then the queen is allowed to run in with the last half of the bees. This generally stops all after-swarming, and insures a good yield of section honey from the new colony. For the highest success in the production of comb honey strong swarms are desirable, and hiving swarms on the old stand not only conduces to their strength but has also a strong tendency to prevent the issuing of after-swarms.

It is not necessary to climb and cut limbs except on rare occasions where queens are not clipped. Allow the bees to cluster where they please, and, nine times out of ten, with two or three light poles of different lengths to which a basket or wire-cloth swarm-catcher can be attached near the further end, swarms that cluster out of reach may be shaken off and secured. Having the bees in the catcher, so there is no danger of other swarms coming out and uniting with them, as would be the case were they allowed to remain where they clustered, plenty of time can be taken to set the old hive off its stand and put a prepared hive on the old place if desired.

GENERAL CORRESPONDENCE

A NEW HOBBY FOR GIRLS

BY E. S. BRINTON

I believe in hobbies. What it is makes little difference so long as it is something that calls forth the best that is in one and not the worst. It should be something so interesting and entertaining that it will absorb the leisure hours, provide food for thought during idle moments, and quicken the desire for study and reading.

In taking up this subject my mind turns first to the girl of limited means and opportunities. She may be living in town or country. She has had a public-school education, but is ambitious to do more—hungry for outside interests, and to have and do something for herself; yet, because of finances, family conditions, or health, she cannot leave home or make any radical change in the routine of living. To this girl especially, I recommend beekeeping. It opens a door of marvelous interest. Thru it is a wide field for mental and physical development.

At the very beginning I wish to say I am not an expert in any phase of beekeeping, and cannot boast of phenomenal increase, high-bred queens, or great harvests of honey. I started with my first bees eight years ago, and now have six colonies—quite enough for a back yard that is supposed to be the family playground. We have honey to eat, to cook with, and to give away. The bees have paid expenses, and I have had no end of pleasure with them.

The cost of starting with bees is small. If good judgment is used, this hobby will not only pay expenses, but also yield a reasonable interest on the money invested; and to a girl who must count every penny, this item alone is worth considering.

Notice the different vocations and professions in which a girl will gain knowledge in connection with her hobby of bees. First, local botany and geography. She must start with her immediate neighborhood; study the trees, shrubs, and wild flowers and the time of their bloom—learning which will yield pollen and which nectar. She must know the nature of the farming country and how it influences the bees. In other words, are there large acreages of swamps to yield a fall crop of honey, or is it an upland region of clover, alfalfa, or buckwheat? Seasonal temperatures and weather conditions should be noted; for while books and bulletins give general directions,

every locality differs, and each one to a great extent must work out her own problems of management and wintering.

A knowledge of simple carpentering, and the use of tools and painting, is necessary; for to buy the hives already set up is extravagance. Full directions for fitting the pieces of hives come from the manufacturer, and any one who can read the patterns of crocheting and knitting can understand these.

The possession of honey in quantity will bring a desire to use it in cooking; to make syrups, honey ice cream, cakes, and candy. The Farmers' Bulletin on this subject will be an incentive for experimenting in the home kitchen.

Selling the surplus is a problem all its own. Probably the whole question of profits will depend on whether the girl herself can also become a good salesman and create a market for her honey, bees, and wax. To do this she must mingle with people, overcome any shyness she may have, and learn to talk interestingly and intelligently. She must adopt some scheme of keeping records of hives and queens. She must learn to correspond with business houses, to handle money, to do simple book-keeping and accounting.

A very important question arises—"How shall I begin beekeeping when I do not even know a bee when I see it?" Begin slowly. Don't do as one young man did who advertised for twenty-five colonies of Italian bees. He was fresh from the city, and had never been in contact with country life except for summer vacations, but even then he should have known better. Of course, he became discouraged, lost his nerve after a few stings, and by the second summer his bees were not in evidence. One colony of bees, properly cared for, with the usual annual increase, is sufficient to engage all your spare time and thought.

Read Kipling's story, "The Mother Hive," found in his book called "Actions and Reactions;" also Maeterlinck's "Life of the Bee." Beekeepers as a rule have little patience with the latter book on account of the mistaken idea that it is a text-book. It is not. The author says in the first sentence he did not intend it for a treatise or a practical hand-book. I value it for its inspirational description of the inside of the hive



Under the apple-tree. Backlot apiary of E. S. Brinton, West Chester, Pa.

and the habits of the bee. To the mere on-looker, bees are nothing but a crawling mass of insects without method or reason. Maeterlink gives each bee a duty and a place in the kingdom, with such vivid words that the most casual reader can comprehend it.

Now as to getting the bees. The cheapest and easiest way is to get some plain dark bees in an old box hive and do the improving yourself. I bought my colony from a neighbor, paid three dollars for it, and helped carry it home and set it down in the midst of my flower-garden. That was in March. In the meantime I ordered from a supply house two hives and two supers in the flat. Putting these together was as fascinating as a picture puzzle. I split some pieces with poor nailing and made mistakes with others, and finally painted too many surfaces of the hive; but I did it myself, and was wiser for the doing. In fruit-blossom time the bees were transferred to the new hive. That was a wonderful day, for I had my first glimpse of the inside of a hive, and learned to recognize the queen on sight. I knew nothing of the operation, but was assisted by a brother who had had a year or more of experience. The bees were as quiet as flies. We discarded all veils and gloves so as to work unhampered, and two small children played about and enjoyed the dripping honey.

That year was one of the record-breakers for a white-clover harvest; and so, even with all my interruptions, the bees gave me two supers of honey and I was tremendously proud of them. Then everything seemed to go wrong. Those bees, hitherto so peace-

ful and quiet, and absorbed in their own affairs, became possessed of tempers like that of Satan himself. After the honey harvest I attempted to introduce Italian queens. All the books said this was the ideal time. Instead of flying off to the fields in the morning these bees just loitered around at home waiting for something to happen—there seemed to be literally millions of them, and finding that restless black queen was worse than finding a needle in any haystack. Also I had such confidence in my control of them that the matter of self-protection was overlooked entirely. I was dressed to be comfortable for the summer season—short skirts, low shoes, elbow sleeves. Oh, yes! I wore a thin net veil and some kind of short light-weight gloves, so my fingers would not be clumsy. That was according to the books, only some advised cutting off the finger tips. Talk about losing my nerve! Before that job was done I wished I had never seen a bee. I was willing to forego eating honey forever, if some one would kindly remove the creatures from my back lawn!

Well, winter came at last. On the first cold day I picked up the hives and carried them off to a corner sheltered by apple-trees, so that their flight-line would not be directly over the lawn. Before another swarming season I successfully introduced Italian queens. There were far fewer bees to search over, and those were improved in temper. Never will I advise a simple-minded beginner in beekeeping to requeen a colony of hybrid bees in late summer. Do it in the spring, when you can work with ease and confidence. It were better to lose

some honey than every ounce of courage and all love for beekeeping.

There have been many recommendations regarding the kind of garb a girl should wear. I acknowledge the men with trousers have a decided advantage in some ways; but, nevertheless, I am not going to follow suit. I have found that with clipped queens there is no climbing of trees or ladders, nor does any circumstance ordinarily arise where skirts are really dangerous. There is a possibility of bees climbing up, and some women have spoken of being decidedly annoyed that way. That has troubled me very little, chiefly because I make sure the bees never have such an opportunity. I make it a practice not to walk or stand at the front of the hive, at least without making sure there are no stray bees just under me. Then when operating I either sit or kneel with skirts well spread out.

My preference is for a dress of white with skirt long enough to meet high-topped shoes. White is the coolest material possible, and it does not attract the bees as does a thick dark goods. It seems strange that, while they sense one's vulnerable spots around hands and ankles, they seldom attempt to sting the body itself. I have noticed that it is perfectly safe to wear a waist of the thinnest, sheerest material, while at the same time it may be necessary for comfort to use gloves. My gloves are

of the ten-cent cotton variety, with long muslin uppers. At first these were dipped in linseed oil to make them absolutely bee-proof, but I do not mind now. I have become sufficiently inoculated so that a sting means not more than half an hour of discomfort. At first my arms would swell and throb so that sleep would be impossible for two nights. I use a wire veil. I have never known a bee to get inside. The wind does not disturb it, and it does not tear on rose-thorns or trees.

I do not advise the large-sized hives, now so popular among professional beekeepers. The time of year when the necessity for moving the hives is most liable to occur is at swarming season (when the weight is probably the greatest); and the ordinary person is so fearful of stings that assistance is always difficult to secure. The eight-frame hive weighs fifty pounds and over when full, and is quite heavy enough to handle.

I have spoken of the advantage of bees as a hobby; but there are other things that will come from an intimate association with them besides a mere study of animal life or a possible financial gain—gentleness of touch, a quiet manner, self-control, a keen sense of observation, a deeper, broader knowledge that will give a more sympathetic understanding of all the wonders of our universe.

West Chester, Pa.

A BEE IN A CALIFORNIA BONNET

BY FLORENCE B. RICHARDSON

The bee has been in my bonnet for so many years now that I cannot imagine a bonnet trimmed otherwise. My courage was pretty good when I first reached the Golden State, for I had read all the lovely railroad prospectuses and all Dr. Cook's interesting articles in *GLEANNINGS*; and when a fine swarm alighted on a tree near our new home I promptly hived it in a fruit-box with a couple of slats hastily nailed in. You see, when a person has always lived in a city, and kept bees on a city lot, where swarming had to be kept down and no stray swarms ever by any chance allowed to get away, why, a whole big swarm in a tree with no one's name tagged on to it looked pretty big to me.

Well, that swarm never did seem to do much, mainly for want of attention, I guess, or may be it was because of too much—one is never sure until afterward that he did just the wrong thing at the right time or the right thing at the wrong time.

However, one of our valley winds—more like a hurricane—came along and entirely demolished combs, bees, and all. The hive remained as a reminder of what might have been had I done thus and so.

After a time, however, I had an opportunity to buy ten colonies of bees in old box hives at my own price, the owner saying he'd "much rather run into a bunch of wildcats than to tackle a colony of bees." To digress a bit, I've often found that these "wildcat" people have either *never been* stung, or else once or twice has been the limit of their experience; and to see them go fishing and get chewed alive by black flies, or to see them sit on their porches and get liberally stung by mosquitoes with never a murmur in either case, is, to a rabid beekeeper, a bit inconsistent, to put it mildly.

When I first saw those bees they didn't look very strong, and, with the exception of three colonies, I expected to have to re-



Susan E. Howard, Stoneham, Mass., demonstrating that she is not afraid to give bees a shaking-up. See editorial.

queen; but it is a difficult matter to tell what a box hive may contain, so I made the offer of \$3.50 for the whole outfit just as it stood. He was glad to get it, and said he'd be better suited when the last one was gone. My family insist that he gave me the bees and sold me the honey at half price.

It was not possible to get the bees at once after I purchased them; and when they were finally brought to the house, several of the colonies had gathered honey in such quantities that two men had a bit of a struggle getting the hives up the steep grade that separates river bottom from plain. From about six hives we strained out 300 pounds of honey, and rendered about 30 pounds of pure yellow wax.

There is no more fascinating thing in beekeeping to me than transferring bees from an old box into a nice modern hive, and then watching them hustle. Of course, sometimes the hustle is missing along with

the queen; but with good care they nearly always make good colonies, and sometimes a really choice queen is discovered, as in the case of one colony in this lot. She has eight out of the ten frames entirely filled with brood, and the cappings of their honey are pure white. Those white cappings are the only sign of black blood they show, and I never handled gentler bees.

Last year, on the invitation of Miss L. D. Clark, of the California University Farm Extension work, I went to Davis, Cal., where the 44th fruit-growers' convention was held, and spoke twice to crowds of women on the possibilities, profits, and pleasures of beekeeping for women. My! but it was great to see the interest shown, and I know there are women from Shasta County to San Diego who are keeping bees at present because they feel that a woman can do so successfully. She certainly can. Hughson, Cal.

STARTING WITH A SMALL LATE SWARM

BY JEAN WHITE

My own first experience with bees came about rather unexpectedly. I had always been much interested, but had delayed purchasing any, fearing my lack of knowledge might cause me to lose them. I had a well-defined determination to own a swarm or two of bees some day, but hoped to have an opportunity to learn more about them than I could get from a book, altho I had read a good deal about them.

One hot afternoon in mid July the men came in from the hayfield and said that a swarm of bees had settled on the trunk of a small tree by the roadside about five feet from the ground. In my wildest dreams of honey and honeybees I had never dreamed that a swarm would come to me; but I had no mind to let them leave me if I could avoid it. The men were wet with perspiration, and dared not mix up with such fiery-tongued visitors, so it was distinctly up to me to take them.

I got out my bee-book and turned to the chapter on hiving, and hastily perused it. A veil and gloves and a box for a hive were needed. I found a box about fifteen inches square, and nailed a board across the open end, leaving a slit an inch wide not covered. I put on my shade hat, tied a big chiffon veil over it and around my neck; put on thick driving-gloves, got a big turkey wing and a white table-cloth, and started out to experiment. My heart pounded fiercely with fright; but I would not give up to it,

so I spread my table-cloth at the foot of the tree and as far around it as possible; set my improvised hive on the cloth with the opening toward the tree-trunk, and boldly began to brush that clustered mass toward the ground. They clung more or less to the wing, and I brushed them into the opening of the box with hand and wing, and here I discovered that tight kid gloves are not a very successful protection for my hands; for where the kid stretched tight over my knuckles they stung thru it, tho not able to leave the sting in the wound. After a while one got on my veil over my chin, and lanced me finely thru the gauze stuff before I had presence of mind enough to slap it and put a stop to its mischief. I kept at work, and soon had the satisfaction of seeing the crawling mass hurrying into the box. When nearly all were in I left them, as it was nearly night.

I did not go near the bees again until after dark. They were quiet in the box, and I wrapped it in a piece of mosquito-netting and carried it to the house. Then I drove to town and procured a second-hand hive. I wanted to shake them into it that night, but was told that I had better set my hive where I wished to establish it, and shake them on to the entrance-board in the morning. This I did, and accomplished the feat without accident. When I removed my veil the night before, I bathed the stung places with a strong solution of chinosol.



Beekeeping class of the Massachusetts Agricultural College on an excursion to the historic apiary at Colrain, Mass., where Langstroth carried on his experiments. See editorial.

They were not much swollen, and the next day were only a trifle sore. I found later that I was practically immune to the poison, for, tho stung occasionally, I never suffered any particular inconvenience from the stings.

How I watched those bees! I would sit for hours close to the hive and watch them carry honey and their overloaded pollen-baskets into the hive. I was anxious to know what was going on inside; and after a couple of weeks I opened the hive, but I had put no foundation in the frames, and they had built their comb crosswise, and it was all connected together, so that I could not remove the frames to look them over. There were signs of brood in some of the combs that I could see, so I left them alone, satisfied that all was going well. In the fall I began to feed them syrup made of granulated sugar and water half and half.

I always bore in mind the admonition in my book, to move quietly, and therefore I

had no trouble with them. As cold weather came on I put blankets over the hive, covering top and side except the entrance side. This faced south so as to get the warmth of the sun. The day before Thanksgiving it began to snow, and, first covering the entrance with netting so that the bees would not fly out the hive was placed in the house cellar, which is dry and cool. The comb they had made was filled and capped, all but a very little of it. I had not expected any surplus honey as the swarm was late and not a large one. The hive was raised about two feet from the cellar bottom and kept dark.

I love my bees, and shall always keep them. Should I lose all I have I should look for the cause, then buy more to start a new apiary, and try to avoid future losses from any known cause. Bees are interesting and profitable. Their wisdom puts to shame the wisdom of man, and their product is most delicious.

Glover, Vt.

A BOY'S START WITH BEES

BY J. A. ALLARD

When quite small I was impressed by the only two things which I knew about bees—that they could sting, and make honey. I think that I was more impressed on several occasions by the first-named quality.

My uncles kept bees, and it was when I visited them that my interest was aroused.

The rows of clean white hives on a green background, and the hordes of yellow bees glistening in the bright sunlight, and ever working and humming, made a beautiful picture indeed.

When my uncle came home from work I plied him with eager questions, and he will-

ingly unfolded the story of the queen, drone, and workers; of the brood-nest, eggs, larvæ, and pupæ, and explained that the half-depth boxes were to hold the surplus honey, and he showed me an empty hive and section-super.

He then started a fire in a queer-looking little furnace, the smoker, and invited me to go along and see the bees and queen. I pointed to a bee-veil near by and asked him if we did not need it, for I was very much afraid of getting stung. He replied that he seldom used a veil, and promised that, if I did what he told me, I should not receive a single sting, so I decided to take the risk and follow along.

He singled out a hive, gave two or three slight puffs of smoke at the entrance, and gradually pried the cover up, puffing some smoke under it at one side as it came up. He told me to stand perfectly still, and not to make any quick moves. I expected to see probably a handful of bees; but as he lifted the cover there was a great roar, and I saw the inside of a strong colony for the first time. I thought there must be millions of bees. They gave me a sort of crawly sensation, and I would gladly have run away, but was afraid to stir.

My uncle then removed the division-board and the three combs next to it, one by one, each comb literally crowded with bees. He told me not to blow my breath against the bees, and then shoved a comb in front of my face and pointed out the larvæ which I thought resembled the little white worms found in rotten wood. He then pointed out cells with eggs in, and, tho I could not see the eggs, I nodded my head and made believe I did, for I was afraid I would have to breathe, and I didn't know what those bees might do if I breathed. After he had removed three frames on one side of the hive, he pried all the frames over a little, and removed the frame next to the opposite side of the hive.

"There she is!" he exclaimed, and then pointed out the queen. I noticed that she had no stripes like the other bees. He then slowly replaced the frames. Only once did

a bee threaten me. It came up and poised within a few inches of my nose and stayed there for a second. I stood as straight as I could and held my breath, and I felt cross-eyed for about a week from keeping both eyes on it. But the bee left, and I was glad it did, for I was beginning to think seriously of leaving in a hurry. So I got off without a sting, as my uncle had promised.

After I got the hive home, my first wish was to get some bees. Happily a friend who kept bees, mostly in the old-fashioned way, knowing that I had a hive, and wanted some bees, promised me the first swarm he should have. I procured foundation from a supply-dealer and made my hive ready for the bees; and a swarm was given to me on Saturday, June 15, 1912. They built up rapidly, despite the fact that I inspected them at least once and sometimes twice each week day, handling each frame. There is no doubt in my mind now that those bees were glad to see Sunday come. Some time in July they swarmed, and I put the swarm in a standard hive which I had bought in flat and put together. The new swarm built up into a strong colony before winter, and the old colony gathered about twenty-five pounds of surplus.

To prepare these colonies for winter I placed them side by side, put a super filled with chaff on top of each one, and then put some rough boards around them and banked up with dirt. I happened to have a large box about one foot deep which telescoped nicely over both hives.

The next season I ran my bees, together with some others, on shares. But about this time I got a position in an office and was unable to give them enough attention. I started to work about 8:00 A. M. and quit at 5:00 P. M., and had my bees to handle and other tasks to perform besides. Thus I was unable to do anything well, and the bees were greatly neglected. However, I got a good crop of honey, mostly extracted. I was enabled to increase my own two colonies to fourteen, and get about fifty pounds of surplus extracted honey.

Osecola Mills, Pa.

CLERGYMEN AS BEEKEEPERS

BY THE REV. HERMAN W. WATJEN

Some time ago a noted clergyman, speaking in the city of Boston to a large gathering of ministers, mostly from country parishes, said, "Brethren, keep hens; they are profitable, and will add materially to your income." Had the good preacher known

anything about bees I am sure he would have changed that statement. He would doubtless have said, "Brethren, keep bees; they are more profitable than hens and require less care; they take up little room and make no noise; they can be kept almost



These bees are located in the center of Morgantown, N. C., a town of 5000 inhabitants. They fly from $2\frac{1}{2}$ to 5 miles to the sourwood.

anywhere—in your study, in your attic, in your church-tower, on your shed roof, in the corner of your back yard, anywhere, so long as they can get out; they are clean, and need not be fed except on rare occasions. They can be left to care for themselves during your summer vacation, and they will work for you even while you are preaching. Therefore, brethren, by all means look into the bee business.”

It was by accident that I became a beekeeper. It is not my profession but my hobby, my recreation, my pleasure. Since everybody ought to have a hobby he might as well have a good one, and I know of none better than bee culture. My deacon's wife offered me a swarm which had clustered on a low bush in her garden. They looked very inviting—a handsome, quivering bunch of large Italians. But my ignorance prevented me from getting them, altho I held a hastily constructed box, well besmeared with molasses, close to their noses for more than an hour. That tempting bait had no attraction for them, and I saw them sail away in a great cloud of joy. But my interest was aroused, and I purchased a colony. These soon multiplied, and with the increase came experience and

knowledge and honey and money. This was about ten years ago, and these have been years of genuine pleasure and profit. Half a ton of honey is my usual annual crop from about a dozen or fifteen hives. What does not go to sweeten myself, family, and friends, is sold, and the profit helps to pay taxes on a summer cottage and for the gasoline of an auto.

But the money profit is not the only consideration for the ministerial beekeeper. There is the vast field of biological knowledge to which the honeybee introduces him; and not only biology but botany, too, invites his renewed investigation. Every flowering shrub is alive with interest; and a walk thru the fields on a summer's day has added charms. Illustrations from nature are always interesting, and these multiply as the preacher makes first-hand investigations.

Yes, brother minister, try the honeybee for an experiment. Do not begin on a large scale. Get a colony of very gentle bees first. Timidity will soon vanish, and a few stings are quite exhilarating and healthful. Soon you will be immune to all discomfort, and then the real pleasure begins.

Warren, R. I.

CIRCUMSTANCES ALTER CASES—AND THE DISTANCE BEES FLY

BY L. E. WEBB

I am sending you a picture of my apiary of 13 colonies (three not showing) which have built up in two years from one colony, increasing the first year to 4 and last year to 13, with all but two headed with pure

Italian queens, altho I got stuck on several occasions by having impure queens sent me which gave considerable trouble in requeening; yet with my increase from 4 to 13 I secured for market about 300 sections

surplus and all in good shape for winter, and all have come thru the winter to date fine, and are starting a little brood-rearing and have heavy stores yet.

The picture was made Feb. 1, so you will see I am wintering outdoors in single-wall eight-frame hives and haven't lost, I don't believe, a hatful of bees, and the rough weather is over.

I am fully sure of the fact that I made a mistake in starting with eight-frame hives, as the season is so long and brood starting so early, and it seems this eight-frame proposition is upsetting lots of people who have prolific Italians down this way, as it keeps constant work in manipulating.

Our honey-flow is not steady; and after fruit and locust-bloom in spring there is a lapse of a couple of weeks and then a heavy poplar flow, and then a lapse and our

best and largest flow, sourwood, yielding the whitest and perhaps best honey made, and the flow is very rapid.

Sourwood is a tree of the mountains, and my sourwood is gathered from a mountain which, at its nearest place at the foot, is $2\frac{1}{2}$ to 3 miles, and ranging up to $4\frac{1}{2}$ to 5 miles at the top, and at some places that far to the foot of the mountain, and from this mountain the bees get their sourwood. That differs with the ideas of some in other sections as to distances bees go; but facts can't be altered, and I had several stands which averaged around 40 to 50 sections, or about two supers of pure sourwood, and one filling nearly three supers, and perhaps some would be ready to take issue as to distance; but I decided long ago that locality and necessity cause bees to vary largely in their habits.

Morgantown, N. C., Feb. 2.

THE LOCATION AND ARRANGEMENT OF OUT-APIARIES

BY CHARLES E. KINZIE

To get down to business in running out-apiaries we must figure ahead. I have had the best success by arranging for two supers to each hive; and for some, three or four supers. I use ten-frame hives only.

One out-apiary of 130 colonies I have divided into three rows, the rows 16 feet apart, and the hives 8 feet apart in the row. I find that this plan is a success; for when I am extracting and go to a hive tiered up three or four high, and tear it all down, the bees do not go to the next hive. Again, if I am treating the colony for European foul brood, the bees stay at home, and the neighboring colony, 8 feet away, is not likely to become affected. This apiary faces the east.

Another out-apiary has about 140 colonies in four rows. The first row faces the west, the second faces the east, so that the backs of the hives are 11 feet apart—just the right distance to run a cart or auto truck between. The third row faces the west, and the fourth the east. That makes two driveways 11 feet apart between the backs of the hives. The space for the bees to fly between rows two and three is 16 feet. By this plan, when going up and down the rows the bees do not get excited half as much. I expect to lay two lines of track in this yard, and have a car to run the supers of honey right into the honey-house, and then extend this apiary to 225 colonies.

I am just starting my third out-apiary. This will be the same—that is, I will provide it with tracks and a car.

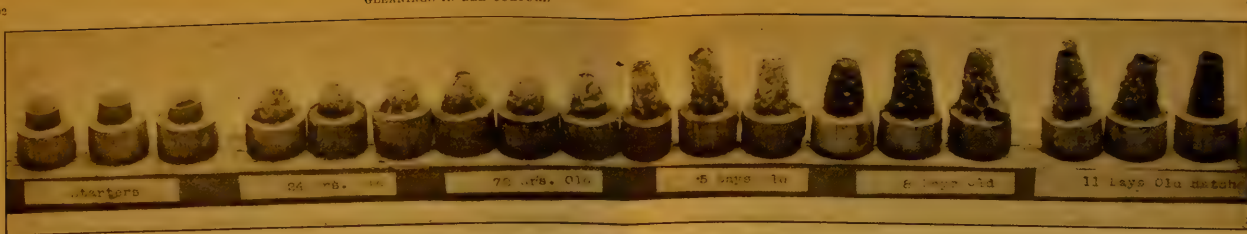
When I take off my honey, I go to the further end of the yard, remove the cover, puff in a little smoke to drive the bees down, take out all the honey that is at least three-fourths capped over. I shake all the bees from the frames into the super, not on the ground. All combs of honey not yet capped over I put in the center of the super. In this way I have no difficulty in keeping the queen from going up above to lay.

I use only eight combs in each ten-frame super. Of course I have ten in the brood-chamber, all worker combs built from full sheets of foundation. Eight bulged-out combs of honey contain more honey than nine or ten combs could hold in the same super. You see there are eleven bee-spaces with ten combs, and only nine with eight; in other words, there is just that much more room for honey.

Many a time I have taken off and extracted fourteen or fifteen 60-pound cans in seven hours, using only a two-frame extractor. I aim to extract every twenty-five days, and I am not bothered by swarming. I do all the extracting at each yard and take the honey home each night, and empty it into large tanks at home. Then when I have time I case it up.

I inspect all brood-chambers as soon as the honey starts in the spring, and then do not disturb them again until August, when I give another good inspection.

My apiaries are eight and nine miles from home. A light auto truck is the thing



Development of the queen-cell from the transferred larva to the virgin.

for out-apiaries with a trailer when necessary. I move only the extractor and capping-melter from apiary to apiary. This year I expect to take a light one-horse wagon-gear, put on a flat top, bolt a four-frame extractor on one end, and the capping-melter on the other. I shall remove

the shaft and put on a draw-bar; then when I move from one apiary to another, all I shall have to do is to trail the extracting-wagon behind the auto, run it right into the honey-house, and get busy. When the extracting is over I will wash up and go to the next apiary.
Arlington, Cal.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sights Among the Bees

BY H. H. ROOT

That bees prefer the edge of a comb for building queen-cells is a well-known fact. That some bees, at least, refuse to build them anywhere else we discovered last summer, for the bees of one colony seemed determined to have their own way.

Wishing to observe and photograph the beginning of natural queen-cell construction we dequeened a colony, making sure

that the combs contained young worker brood in all stages. We kept careful watch of all the combs, beginning the next day, but found no sign of queen-cells until the fourth day, when we found a cluster of them started on the lower edge of one of the central combs. In each case the cells were constructed over drone-cells, and from all appearances the bees were innocently proceeding to rear a queen from those drone larvæ. Of course, it is entirely possible that they had removed the drone larvæ and had put worker larvæ in their places. We watched the result carefully; but before the cells were sealed the bees apparently abandoned the undertaking in disgust. If they forgot to remove the drone larvæ I do not wonder that they gave up the thing as a bad job. But the weather was very changeable at the time, and the colony

not overly strong, so that it is possible that the bees were unable to care for the cells, and that the larvæ in such an exposed place were chilled.

We carefully removed all traces of these cells, substituted another comb containing young worker larvæ, and gave the bees another chance; but, as in the first instance, they constructed cells again on one of the lower edges of the comb, and, as before, failed in bringing the cells to completion.

Bees prefer to build cells on the lower edge of a comb, not because of any desire to get the cells down near the floor of the hive, for in case of a double brood-chamber or a sectional hive the cells are just as likely to be on the lower edges of the upper comb. It is probably just because it is easier to build the cells down into an open space where there is no comb near by in the way.

The building of queen-cells makes an exceedingly interesting study. How all those bees engaged in the work are enabled to figure out the architectural problem in the building of the cells, caring for the larvæ, feeding them, keeping them warm, etc., is indeed a mystery. Instinct? Probably. But is not instinct really mysterious? In the work of bees we are shown wonderful results accomplished by a large force of individuals which carry out an intricate plan, but which work, nevertheless, without supervision. Probably the reason lies in the fact that all the bees share equally in the proceeds, and each bee has but one interest—the interest of her colony.

The second illustration shows the development of queen-cells from the time the tiny worker larvæ are "grafted" into the artificial cell-cups, to the empty cell from which the young virgin queen has emerged. It can be seen that, within twenty-four hours, the bees accept the artificial cells and grafted larvæ, and begin fashioning the outside to their own liking, meanwhile lavishly feeding the larvæ and clustering

over them, making it possible for them to grow. From six to eight days from the time the bees took hold of the work the cells are capped over, and, aside from keeping them warm and thinning down the wax wall toward the very last, the work of the nurse bees is over.

But within the cell the changes taking place are startling. The larva has been spinning its cocoon. The rapid change that

About two days after hatching from the egg.

Four days after hatching.

About seven days after hatching.

Drone about 17 days after hatching from egg.

Twelve days after hatching.

Larvæ and pupæ at different stages (enlarged).



Queen-cells built over drone-cells, and containing drone larvæ.

takes place, which may be seen almost hour by hour, is wonderful. The dividing of the segments of the larva into the three main groups that are to form the head, the thorax, and the abdomen; formation of the legs, and the wings; the beautiful tinges of color from the creamy white to the pink, then the red, then the purple, and, lastly, the brown,



Swarm returning to the hive because the queen was clipped. From A. G. LUCIER, Powers, Wyo.

are all beautiful examples of Nature's handiwork. Who can comprehend it?

The changes in the larvæ may be seen, but it is impossible to record them adequately with the camera; and by the time the engravings are reproduced on these pages only a faint suggestion is given of what any beekeeper may see with his own eyes without the least difficulty.

The first small illustration shows a worker larva somewhat enlarged, about two days after hatching from the egg. When first hatched the larva is almost as small as the egg itself; but by eating constantly its growth is phenomenal.

The next two small illustrations show worker larvæ about four and seven days respectively after hatching.

The next shows the result of the differentiation of the various parts. It is when observing this stage that one feels almost like a spy on the work of creation.

The last illustration shows a drone seventeen or eighteen days after hatching from the egg—that is, twenty or twenty-one days from the time the egg was laid, and therefore at least three days before the time of emerging from the cell. The head has begun to turn purple, and the color is extending down over the thorax and abdomen. The bony frame (chitin) is beginning to grow tough and strong, and the bee is rapidly approaching the time when it will waken—for the first time—and finally emerge from the cell weak and trembling, but perfectly developed—a finished specimen.

THE PREVENTION OF SWARMING IN HOME AND OUT-APIARIES

A Resume of Some Plans that have been Found Successful; Separating the Queen from the Brood

BY R. F. HOLTERMANN

With the exception of the wintering problem there is, perhaps, no subject which creates more general interest among beekeepers than the question of swarm prevention. I propose to give the substance of a number of plans that have been given to me, altho I realize that they may have been made public in one form or another before.

I myself have had a very fair measure of success in preventing swarming since having plenty of drawn combs for the surplus-honey crop; but I have never considered it wise to abandon the practice of looking thru the brood-chamber for queen-cells, usually once a week, and at least every ten days. Many times, it is true, I find such

an examination unnecessary; but there is no way of ascertaining this fact previous to the examination. On the other hand, colonies have been found with the swarming impulse week after week, altho I continue to break down the cells, expecting that the bees will cease rebuilding them. If I could have foreseen this I would have shaken the bees from the combs and removed the brood, because, as we all know, such a colony will not gather the usual amount of surplus honey.

At the Michigan state beekeepers' convention, held at Grand Rapids last December, I learned that this subject was to be taken up, therefore I attended the convention and interviewed several of the beekeepers whom I considered authorities on the subject.

FRANK SLUSHER'S PLAN.

Mr. Frank Slusher, of Traverse City, Mich., uses the ten-frame hive, and winters his bees in a cellar. They are set out on the summer stands some time during the first half of April. He usually carries them out at night and contracts all entrances to a space 1 inch by $\frac{3}{8}$. He thinks by this plan he is able to prevent drifting. He prefers cool cloudy weather the day following, if possible, in order to keep the bees from flying too freely.

Mr. Slusher does nothing with the bees after this until the weather is warmer, and more settled, or until about the time they begin gathering pollen. Then all colonies are examined; those that are queenless are united with other colonies, the queenless colonies being set on top. If a strong colony is queenless it is set over a weak colony, while if a weak colony is queenless it is set over a strong one. A queen-excluder is pushed between the two colonies, care being taken not to disturb either colony.

When examining the bees, the condition of the stores is noted; and, if short, a frame of sealed honey is supplied. If this is not available the bees are supplied with enough candy to last until fruit-bloom, after which, if more stores are needed, the bees are fed a thin syrup until they can gather sufficient from natural sources.

About twelve or fifteen days before the clover or raspberry flow, Mr. Slusher gives all colonies that are sufficiently strong a ten-frame super provided with drawn combs if he has them; if not, full sheets of medium brood foundation. The queen is allowed full range of both stories.

Nothing further is done until four or five days before the honey-flow when he takes from one to three or even four frames of sealed brood (or as nearly sealed as can be

obtained) from the strongest colony. These are distributed among the weaker colonies, or, if not needed for that purpose, are placed in the second story if the queen has not yet taken possession. Provided the queen has already taken possession, the brood is placed in a super which the queen has not yet entered. Frames of brood removed from strong colonies in this way are replaced by full sheets of foundation. Mr. Slusher thinks this is an ideal way to get foundation drawn out. If there is no need of having foundation drawn out, an empty worker comb replaces the comb of brood.

The bees are now left alone until a week or ten days after the flow begins. At that time, all colonies are examined. The cover of the hive is removed, several puffs of smoke given to drive the bees down between the frames, in the hope of getting the queen down into the brood-chamber. The super is then lifted off and a queen-excluder slid between it and the brood-chamber below, the brood above being left to hatch, thus giving the bees more room for surplus. Four or five days later, each upper story is examined, merely by lifting two or three of the center combs. If eggs are found, it indicates that the queen is above. The bees are then shaken in front of the hive and the combs replaced in the super. This is not often necessary, as the queen is generally driven below by the smoke before the excluder is put on.

After this time the work consists in seeing that each colony has plenty of room. As supers are added they are placed next the brood-chamber over the queen-excluder.

E. D. TOWNSEND'S PLAN.

E. D. Townsend, of Northstar, Mich., likes to have a limited amount of spring protection. He winters out of doors, altho last winter he had two apiaries wintering in trenches—that is, buried in sand. On account of limited help he usually begins unpacking his bees about the first of May. It takes perhaps two weeks to do this.

Mr. Townsend puts on the upper stories early, and disposes of the brood-chambers of dead colonies by putting them over the strongest colonies, where they answer the purpose of the first super. During the first manipulation he equalizes stores, providing those that are short with stores taken from those having more than enough for present requirements. He puts the upper stories on all colonies likely to need them within two weeks, not waiting for the brood-chambers to get full. With distant out-apiaries and limited help it takes about two weeks to go thru the bees.

Mr. Townsend objects to heavy packing

in May, because it makes the bees rear drones and get ready for swarming, drone-rearing being the first step toward swarming. Later on he judges by the action of the bees; and if they are likely to swarm he examines the combs for queen-cells. I asked him if he thought black bees showed more by their actions and entrance the tendency to swarm. He answered by saying that in his opinion they do show it more than Italians.

In the examination, if queen-cells are found he takes the queen with the poorest comb of brood and places them in a new hive on the old stand, the remaining brood being put on top of the hive with the super. If he desires to make some increase to replace lost colonies, he sets the brood, within ten days, on a new stand, making a new colony of it. He sometimes gives such a brood-chamber an entrance so that the young queens can get out and mate. In that case he puts a queen-excluder between the brood-chamber and the super beneath it.

DAVID RUNNING'S PLAN.

David Running, Filion, Mich., has taken bees out of the cellar as early as March 15 and as late as April 27. He likes to get them out as early as the weather will permit. He contracts the entrances at first to 2 or $2\frac{1}{2} \times \frac{3}{8}$ inches, enlarging them as the colonies get strong. The bees are left entirely alone until fruit-bloom, but he makes sure the fall before that all colonies have plenty of stores. When the apple-bloom comes on he considers the colony strong enough to take care of all the brood in an eight-frame hive. He then clips the queens and equalizes the stores. He does not equalize brood on account of the danger of spreading disease. Any queenless colonies are set on top of other colonies, as he does not consider them worth while maintaining for the surplus honey-flow.

The bees are seldom strong enough for a super at the beginning of fruit-bloom; but as soon as they do become strong an extra super is added without a queen-excluder. A week or ten days later, or at the beginning of the clover flow, when the bees have nicely started storing honey in the upper story, the queen is shaken into the lower story, a queen-excluder put over it, an empty super added, and finally the super that was over the brood-chamber, the colony thus being three stories high. About a week later, during the heaviest of the honey-flow, all combs in the brood-chamber are transferred to the top story, and foundation, or empty drawn comb, put in its place. If foundation is used, one drawn comb is

put in the center for pollen and eggs. The position of the other super is left unchanged, an empty super being left next to the queen-excluder. If the honey-flow later on does not appear to justify the last-named empty super, this is removed.

A week after the queen has been shaken down below the first time, Mr. Running cuts all the queen-cells out of the combs shaken. This is very important. If he can find time he breaks down the cells built in the second lot of brood in the top of the hive next the cover. If increase is wanted, he sometimes sets these upper stories on a new stand before the queens hatch. By this time he does not consider the cutting of the cells very important, because the honey-flow is about over.

If a poor queen is found this hive is marked and the queen changed as soon as convenient. Extracting is begun about ten days after the honey-flow ceases, the supers being freed of bees by means of bee-escapes. The brood-chamber and first super are left undisturbed until September 15, when feeding for winter is begun after the super is taken off.

It was Mr. Slusher, I believe, who said that he started the prevention of swarming by putting empty combs in the brood-chamber with the queen, and the brood in the super above the queen-excluder, but he found this to be unnecessary. In any case, all three of the foregoing beekeepers claimed that, by giving the queen of every good colony the opportunity to deposit eggs in the upper story, and later shaking her down and giving her plenty of range to lay in the lower story under the excluder stopped swarming, or at least reduced it to a very small per cent. They also agreed that, if the combs of brood above the queen-excluder including the queen-cells were raised up and an empty super put between, there would be practically no swarming. Mr. Running, however, favors the destruction of the cells before they hatch, or else he makes a distinct brood-chamber of them with a separate entrance. Heretofore in my own practice I have not provided for fresh room in the brood-chamber during the honey-flow. This feature should be a valuable addition to our fund of knowledge regarding the prevention of swarming.

S. D. CHAPMAN'S METHOD.

S. D. Chapman, of Mancelona, Mich., uses an eight-frame hive and winters in the cellar. He puts the colonies on the summer stand, weather conditions being favorable, about April 15. He selects a time when the prospects are that it will not be warm enough for a couple of days for the

bees to fly. However, he does not want the weather to be extremely cold. He finds that, if the bees fly at once, especially if the weather is pretty warm, the bees drift and mix up more than one realizes.

From the time of setting the bees out in the spring until the beginning of fruit-bloom Mr. Chapman leaves the colonies alone and does not disturb the sealed covers of the hives. At the time of fruit-bloom he puts on upper stories, letting the bees have sixteen combs, but he does not put a queen-excluder between. When fruit-bloom is on he goes thru the colonies for the first time, marking their condition as to their strength, amount of stores, and condition of their queen. At this time he also equalizes by taking combs of brood from some that are particularly strong and giving them to the weak. His object in equalizing is to make them all of the same strength so that they will require about the same treatment during the season.

About June 1, or at the very beginning of the raspberry flow, three combs of the matured brood are taken out of the brood-chamber and put into the super above, three good worker combs being put in the center of the lower brood-chamber. If the queen has entered the upper story at this time (and of course she is likely to have done so

if the colony is strong) he shakes her into the lower story and confines her there by means of a queen-excluder. He now has two stories with brood, and other supers are added for the surplus honey as needed, the bees never being allowed to become crowded. The first extra super is required usually in less than fifteen days, and this is placed between the two stories containing the brood. This must go between the two stories of brood and above the queen-excluder over the lower story, because the combs in the upper story will have queen-cells. With the cells so disposed of, Mr. Chapman finds that the colonies do not swarm when the young queens hatch.

By the above system Mr. Chapman also secures plenty of room for the queens to lay in the combs in the lower story, to which she is confined at the time the surplus raspberry-flow begins. Three combs are entirely empty at this time. Furthermore, if the colony is strong, and the queen goes into the upper story during fruit-bloom, and until the raspberry begins to yield, young bees will have been emerging from the cells in the lower combs, giving just that much more room when the queen is confined below. By this plan, at any rate, swarming is almost entirely prevented.

Brantford, Ontario.

BEE-NOTES FROM HOLLAND

BY J. H. J. HAMELBERG

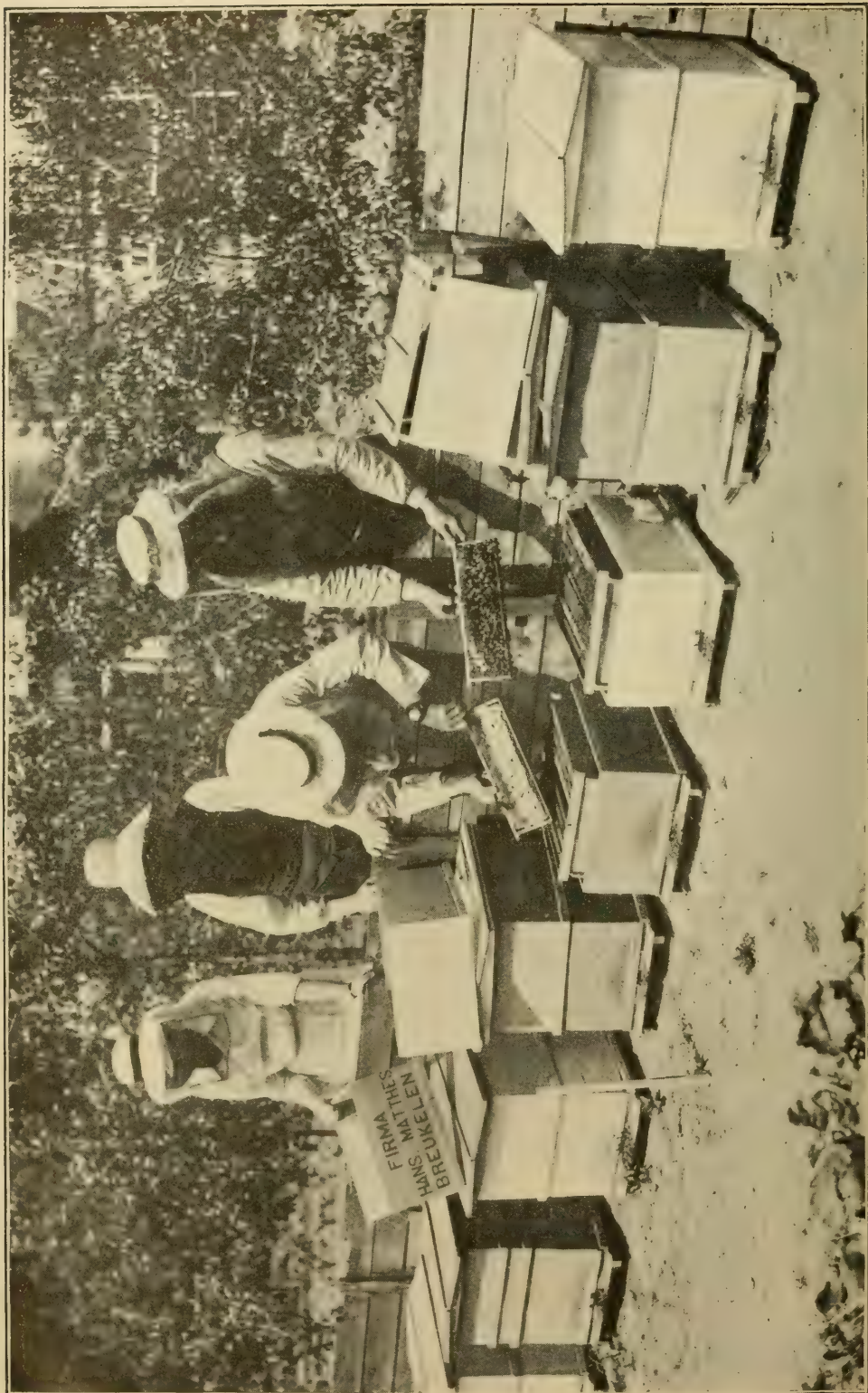
[This is the first of a series of articles on beekeeping in Holland. Later articles will discuss the question of hive and other equipment, the honey crop, wintering, etc.—ED.]

With us the common black or German bee reigns supreme. Italians or Carniolans are exceptions; and as to Caucasians, Cyprians, Banats, and other species, I have never seen them in this country nor ever heard of any one keeping them.

A few amateurs may like to have a colony of Italians or Carniolans in their apiaries, and I know of one dealer in beekeepers' supplies who regularly orders Carniolan queens from Austria to be used in his own yard; but surely nine-tenths of all the bees kept in this country are pure blacks.

Altho preferring the Italians by far, I consider it wrong to condemn the blacks altogether. They are cross, undoubtedly, and they have a nasty habit of running over the combs when handling them; but they have some redeeming qualities. They cap their cells beautifully, and in gathering honey from the heather (an important source of winter stores in this country) I don't believe they can be equaled.

In judging the blacks (or, rather, *our* blacks) it must not be lost sight of that they are probably a good deal degenerated. For years—nay, even for centuries—it has been the custom of our beekeepers every year to sulphur their heaviest colonies—in other words, their best honey-gatherers; and it can hardly be doubted that this practice must have had a very deteriorating effect upon the race. I remember once having seen a very large skep in which a first swarm had been put in the month of June, filled to the very brim with beautifully built comb or worker-cells only. Except on the edges of the combs, no drone-cells were to be seen; and all the cells, except those in the two or three lowest rows of the combs, were beautifully sealed. It was in the latter part of September when I found this skep, and I would willingly have given a hundred guilders for this colony if the stupid beekeeper had not already sulphured it and its parent colony, also a very good one, as well. Such practices, continued for centuries,



Handling bees in a Dutch apiary. From Hans Matthes, Breukelen, Holland.

must have brought down the standard of our blacks.

But judicious selection and breeding may, perhaps, be able to give us a strain of bees unsurpassed for the conditions of our bee-flora and our changeable climate.

The principal objection raised to blacks in the United States seems to be that they are not immune to European foul brood. But this objection does not carry any weight with us, as this disease is, fortunately, but seldom met in this country—at least I have never heard of any cases in which apiaries were ruined by it, or nearly so, and I myself have never seen a colony affected by it.

What I have against the blacks is their habit of sacrificing honey-gathering to brood-rearing during the latter part of the summer flow. If, for the thoro ripening of the honey, supers are left over a colony of blacks, they will entirely empty them to rear brood, when a sudden stoppage in the honey-flow occurs at this time. Considering that their main winter stores must come from the heather (which blooms in August and September), the bees very likely only follow in this their natural instinct, trying to get as big a force of workers as possible for the autumn-flow. But it remains an objectionable habit all the same, which, however, may possibly be outbred.

The buckwheat-flow having failed us last year I had a striking instance of the superiority of the Italians. The one colony I have of them, altho not very strong in spring, gave me over 60 pounds of extracted honey by July 15, while my best colony of blacks (and one which, in the early part of May, had been judged "a magnificent stock" by one of our well-known practical beemen, Mr. R. Tukker, see *GLEANINGS* for October, 1908), gave me only 15 sections, most of which were only partly filled.

To be fair I must say that, when ordering this colony from Italy, I paid something extra to get a superior queen. The colony has never swarmed; and, altho always having done better than my blacks, the difference has never been so glaring as this year, buckwheat seldom leaving us in the lurch



In Holland a mouth bee-smoker is frequently used, which leaves both hands free for handling the frames.

altogether. But I hardly need to say that, at present, all my colonies of blacks have been provided with a queen reared from brood of this Italian stock.

I have one colony of Carniolans. I have had these bees for some years, but I do not like them. They stop work a couple of hours sooner in the day than either blacks or Italians, and they don't make up for this by rising any earlier. I cannot complain about their excessive swarming, as none of my colonies of Carniolans ever swarmed more than once in a season, and last year they did not swarm at all. With me they don't excel in honey-gathering, and have not proven themselves superior to the blacks in this respect. I consider them a lazy strain of bees.

Soest, Holland.

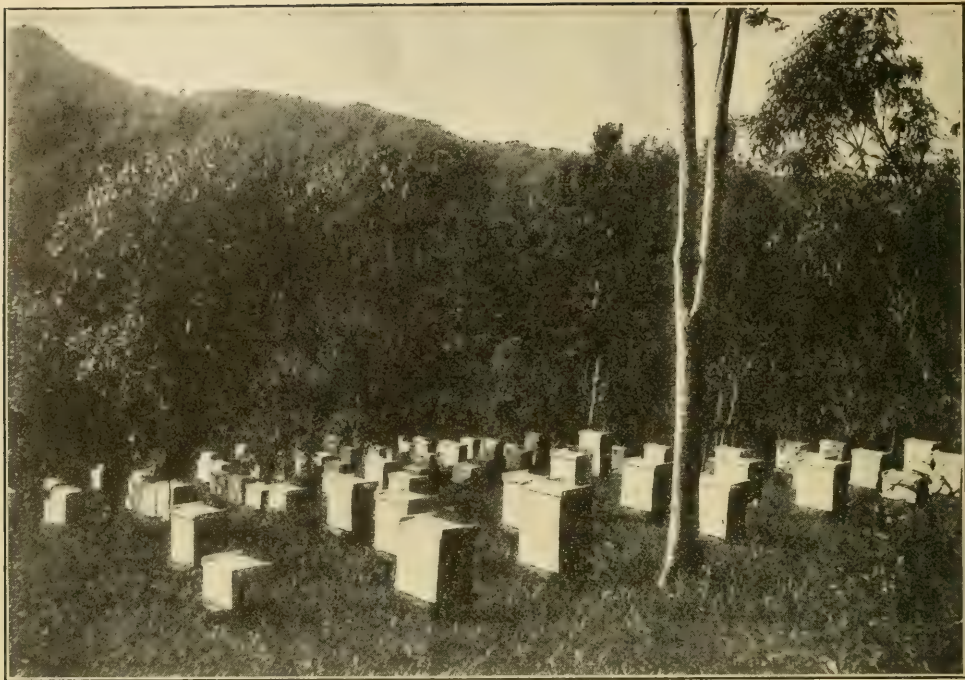
SOME OF THE NEEDS OF THE PORTO RICAN BEEKEEPER

BY RAFAEL VIDAL

Porto Rican beekeeping suffers from a general lack of knowledge of up-to-date methods. No fault can be found with equipment. It is modern and practical, but too many persons have gone into the business with a superficial knowledge of the subject,

and with the idea that all there is to keeping bees is relieving the workers of their honey at frequent intervals, and disposing of the crop at fancy prices.

There has been a sad awakening since the depression came, caused by the war. Prices



Typical Porto Rican apiary. The beekeeper of the tropics has peculiar problems of his own.

are low; the crop has not been an average one, and many of the smaller beekeepers are "climbing off the bee-wagon." All this will improve matters in the end for the large-scale apiarist.

One of the greatest needs of the Porto Rican beekeeper is a strong association which will procure supplies at a material discount to the individual, and regulate, to a certain extent, market prices, and stimulate a live and active interest in improved methods and better management. The interest is present, but it stagnates thru lack of opportunity to exchange ideas with men in the same line of business. A short-lived association published a small periodical which, undoubtedly, was a factor in helping the island beekeeper. Its discontinuance is to be regretted.

Another handicap to better beekeeping is the use of poor, nervous strains of bees. This has resulted, among other things, in the almost universal use of gloves and veils, a practice with which the northern apiarists have little patience. The discomfort of heavy gloves under a tropical sun may be easily imagined.

The lack of definite knowledge in regard to blossoming periods is another element hindering the insular beekeeper. Not only

do the various localities differ in this respect because of differences in altitude, rainfall, etc., but the blooming periods for the same locality are apparently so inconsistent that only a very close observance of the flora will give an idea when a certain bloom may be expected.

These difficulties of the Porto Rican beekeeper are not offered as unadulterated pessimism, but only to show that the way of the tropical apiarist is not the primrose path so many people imagine as they recall such phrases as "luxuriant tropical bloom." The beekeeper in the tropics has peculiar problems of his own which, as everywhere else, must be met with patience, experience, and common sense.

The bloom in Porto Rico is heavy, but is apt to come on with a rush, giving the bees more work than they can handle. Among the principal honey-plants are moca (*Andira inermis*) and the leguminous trees so commonly used as shade in coffee plantations, guama (*Inga laurina*), and guava (*Inga vera*, not the guava of guava-paste fame). The guama is one of the best sources of pollen as well as the best honey-plant of the tropics.¹² It blossoms from three to five times a year.

Mayaguez, P. R.

PENNSYLVANIA BEEKEEPERS' MEET

BY GEORGE H. REA

The twelfth annual convention of the Pennsylvania State Beekeepers' Association was held in the Chamber of Commerce Hall, Lancaster, on Friday and Saturday, March 3 and 4. This proved to be one of the largest meetings of the association in point of attendance, and perhaps the most enthusiastic. Several things contributed to make it so. Perfect harmony prevailed thruout, and the contagious enthusiasm and zeal thrown into it from the start by Economic Zoologist H. A. Surface, president of the association, were probably the two most important factors in the success of the meeting. The secretary, Prof. H. C. Klinger, had the program so arranged that everything went off like clockwork. He was especially fortunate in securing the presence of all scheduled on the program, with one exception. The chief difficulty was in stopping the discussions on the important subjects in order to give sufficient time for the next number.

One of the notable features of this convention was the presence of several press reporters who stuck to their posts thru the sessions, early and late. As a result, complete reports of the convention were printed in various city papers. Some of the addresses were even printed in full.

Mr. L. B. Huber, chairman of the local committee, and his assistants, Samuel Gochenauer, E. S. Hacker, L. K. Hostetter, and Elmer J. Weaver, had everything in readiness for a warm reception for the visiting members. Mr. Huber, with his complacent smile and inherent good humor, was a prominent figure all thru the convention. He also contributed one of the most valuable papers given, entitled, "Constructive Farming and Beekeeping." He showed how one can practice better methods of farming while growing crops like the legumes and buckwheat that produce honey crops. Lancaster County is the richest agricultural county in the United States, having over 99 million dollars' worth of farm property and products. Mr. Huber, as one of its progressive practical farmers, spoke from experience.

Vice-president R. M. Reily, of the Chamber of Commerce, made the address of welcome. The kind hospitality extended by him was put into action by the local people.

Dr. H. A. Surface, in his annual address, said in part, "If, in the keen struggle for existence in the future, we are to compete with other nations we must be as economical as they. For example, it has been but recently announced that the German authori-

ties have issued a proclamation that the blossoms of various trees and shrubs, such as the alder, hazel, etc., should not be gathered for decorative purposes this spring, because, altho wild and uncultivated plants, they will furnish nectar and pollen for the bees, and, later in the year, yield nuts for the food of mankind. If the Germans, in their present stress, foresee the importance of such economy, can we not say that the beekeepers who are making it possible to gather and save the nectar from our various blossoms, and put it before the consumer in the form of honey, are performing a valuable service to mankind?"

Dr. Surface brought out the facts that in Pennsylvania there are about 22,500 persons keeping bees, with an investment of between one and two million dollars. About one million dollars' worth of honey are produced annually. He said, "There are at this meeting persons from more than fifteen counties scattered in different parts of the state. They represent the Pennsylvania Beekeepers' Association, which has the largest membership of any agricultural society in the state.

"It pays to advertise in local newspapers. There are no better educators in the country than the local newspapers. There are three hundred members of this association, and during this year each one in his own community should carry on a newspaper crusade to inform the public that there is a beekeeping industry in the locality; that there is local honey, local beekeepers, for the people like a local product best. Use printer's ink; do not be afraid of it; use lots of it."

He further urged that those in attendance should make notes on the good things said at the convention by the various speakers, and write them up for the local papers from time to time during the year.

The apiary inspectors, J. R. Rambo, John O. Buseman, and George H. Rea, reported 9384 colonies inspected in 1915, at a cost of about 20 cents per colony. In this connection Dr. Surface stated that he had records from owners of bees in certain infected territories, to the effect that their bees are doing much better since the services rendered by the inspectors. The educational value of apiary inspection is its chief merit.

Perhaps the most interesting feature of the whole convention was a paper entitled "Beekeeping a Hobby for Girls," read by Miss E. S. Brinton, of West Chester. [See page 393 this issue.—Ed.]

"Marketing honey" was handled ably by Mr. E. F. Strittmatter. Working the home market, the importance of neat and attractive packages, and personal canvassing, he gave as the main features of success. Advertising is very important, and satisfied customers are the best advertisement. Mr. Strittmatter has built up a large trade for his honey in tin and glass packages.

Dr. E. F. Phillips could not be present; but he was ably represented by his first assistant, G. S. Demuth. His talk on the four important periods to be taken into consideration by every beekeeper proved to be very interesting and valuable. These are: The late summer and fall period when the winter colony is reared; the winter period, or that of the conservation of the energy of the bees; the period of tremendous increase in the spring, and the period of the honey-flows.

During these periods, considering a normal colony with a good queen, etc., plenty of stores, protection, and room are necessary.

Queen-rearing, with its many difficulties and problems, was ably handled by Mr. J. R. Rambo and Mr. W. S. Sellers. Many valuable points in the producing of good queens were given to the beekeepers.

Three papers read before the convention, viz., "Getting Ready for the Honey-flow,"

by Mr. L. K. Hostetter; "Spring Management," by J. O. Buseman; and "Wintering," by Elmer Weaver, were full of good things, and had many valuable points taken from practical experience. The especial value of the fundamental essentials to successful beekeeping, good queens, lots of winter stores, and protection from cold, together with the proper manipulations at the right time, was emphasized.

"Habits of the Honeybee," by Economic Zoologist H. A. Surface, was the last number on the program. It is impossible to give a digest of this splendid paper, because of lack of space. Many fundamental truths necessary to be known by the beekeeper who would attain the highest degree of success, were presented by Dr. Surface, from the standpoint of a scientist as well as a practical man.

The election of officers was as follows:

President, Dr. H. A. Surface, Harrisburg.

First Vice-president, George H. Rea, Reynoldsville.

Second Vice-president, Mrs. Gertrude Weaver, Philadelphia.

Third Vice-president, R. L. Coons, Coudersport.

Secretary-treasurer, Prof. H. C. Klinger, Liverpool.

About sixty members were present, and as many visitors.

QUEEN-REARING FOR THE BEGINNER

BY J. E. JORDAN

SELECTING THE BREEDING-QUEEN.

Early in the spring, the first thing to think of is a queen to breed from. There are many points to be kept in mind in selecting a breeder, if one cares to improve his stock, build up a business, and make beekeeping an art. Here are the points to be remembered:

1. She must be pure.
2. Her workers must be gentle.
3. She should have made a record for prolificness and honey-gathering. (This should be recorded on the slate at the side of the hive.)
4. Her bees must be the least inclined to swarm under trying conditions.
5. If pretty yellow queens are desired their bees must have yellow abdomens. This applies to the three-banded Italians.
6. Her workers must be large as well as herself.
7. Her drones must be large and of good light color. These drones should have been reared in colonies which are also pure and have made a honey record.

8. It is desirable that her bees cap the honey white.

WHERE TO KEEP THE BREEDER.

After selecting the queen, the next thing is to get her on shallow frames or small frames in order to make grafting easier, also that she may be found more easily.

To transfer this breeding queen to another hive with shallow frames, get two shallow frames of honey, placing one on either side of the hive. Next put in four shallow frames of sealed brood and larvæ, being careful that all bees are brushed from them. Place one empty shallow brood-comb between each pair of combs of brood. Then cage the queen and lay the cage on the top of the frames, next go to the colony where the breeder came from and get two or three frames of young bees. These frames must be well covered. Brush the bees thru an empty super placed on the shallow-frame hive, down into the hive. Cover the hive and contract the entrance down to about an inch and let it stand for one or two hours; then release the queen. By adding an emp-

ty frame each day, or, rather, a frame with hatching brood in it, and putting it in the same place every time we always have larvæ to "graft" of the right size and age. Grafting—that is, transferring the selected larvæ to prepared cells—may be begun four or five days after putting the breeder on the shallow frames. Remember, even if the queen lays immediately after her release from the cage those eggs will not hatch for three days, and it will then be another 24 hours before the larvæ will be old enough to graft.

If the above work is done in the early spring, or when a flow of nectar is not on, do not neglect to put in a feeder and give the colony a little syrup each afternoon about sundown or after. This will cause the bees to feed the larvæ better; and well-fed larvæ are what we want. They must be floating in the milky food.

Two days before grafting, in order to have a cell-building colony ready, dequeen a good strong colony that is overflowing with young bees, and place in the hive a division-board feeder. Feed this colony every evening about sundown until the cells are sealed. Feed all cell-building colonies and the breeder about a pint of syrup if there is no flow of nectar. I always feed at sundown or after, as there is less danger of starting robbing at that time.

GRAFTING THE LARVÆ INTO THE PREPARED CELLS.

At the beginning of the season, as there is no royal jelly available, graft the first lot "dry." Do not expect great results with this first lot. Take the frame of larvæ from the breeder; and, after making sure that the queen is not on it, shake the bees before the entrance. With a grafting-tool lift the larva from the cell by sliding the point of the tool under it so that it will float on to the tool. The larvæ should not be over 36 hours old. Place a larva in the bottom of each cell cup, which cups should have been previously prepared and stuck on thin sticks. Eighteen cups should be on each stick. Now give this lot of 18 grafted cells to the queenless cell-building colony, hanging them in with the open ends down.

Care should be taken not to injure the larva in lifting it from the cell, as an injured larva means a bad queen. Also see that there are no fine particles of wax or dust in the cell cups. Be sure to graft as much as possible from the center of the comb, as drone larvæ will sometimes be found around the edges, especially the upper edge next to the top-bar.

After placing the cells in the queenless

colony, make a record in the record-book of the number of the hive in which the cells have been placed; also of the breeder, the date when they are due to hatch, and the number of cells grafted. Cells should hatch 12 days after grafting if the larvæ are the right size.

Now dequeen another colony to have ready for cell-building three days later. Don't forget to put a feeder in this colony also. In grafting the second lot of cells one will have better luck, as there is by this time royal jelly with which to "prime" the cells. Go to the colony which has the first lot of cells and cut off an unsealed cell which is well fed. Take this cell and extract the larva, throwing it away; then with a small paddle stir the royal jelly until it becomes of uniform consistency. With the paddle, lift out some of this jelly; and with a small round stick, which has a small cavity in the end, take a drop of this jelly and place in the bottom of every cell cup. One well-fed cell should contain enough royal jelly to prime from 36 to 54 cell cups. In hot dry weather sprinkle the floor of the building, and the jelly will not dry up so quickly.

After priming the cell cups with the jelly, repeat the grafting operation as before, placing a larva in the center of each cell, *on top* of the royal jelly. Place the lot of grafted cells in the second queenless colony, being careful to make the record as before. Always have a slate on the outside of the hive on which to write the date the cells are to hatch, and the number of lots or cells.

After the cells have been sealed they may be put in the upper story of some good strong colony to stay until ready to be distributed. The queenless cell-building colony will thus be available for use again. In placing the sealed cells in the second story of a colony with a queen, two well-filled combs of larvæ must be raised to the second story, and the frame with the sealed cells placed between them. A queen-excluder must be put between the super and the brood-chamber to keep the queen from coming up and tearing the cells down. The cells may be left in this super until two days before they are due to hatch. They must then be taken out, care being used not to jar or turn them upside down, and cut from the stick. Each cell should be placed in a West queen-cell protector. After you have them all in the protectors, and distributed, one cell to each nucleus, which you have already formed, they can hatch out in their natural way.

Hang a slate on each nucleus with the date the queen is due to hatch, written on it.

One or two days after the queen has hatched go to each nucleus and examine to see if the bees have accepted her, at the same time removing the cell-protector. If the queen did not hatch, leave the cell and mark it doubtful by putting the slate on the cover with some grass under it. Then examine it next day. If she has not hatched then, or the bees have killed her, lay the slate on top of the cover without the grass. This signifies that the nucleus is queenless and needs a cell or a queen.

Never give a cell to a nucleus that has run out of brood, as it is useless. The bees will always kill the queens. Provide a comb of larvæ from another hive, at the same time removing an empty comb. In from eight to ten days (in good weather) after the queen hatches she will be laying.

CELL-STARTING COLONIES.

After the queen-rearing work is well under way, and the stronger colonies have brood in the second stories as well as in the brood-chamber, select one or two good strong colonies which are handy to the workshop; dequeen them, and use them for drone hives and for starting cells during the whole season. These colonies must be kept well supplied with brood in all stages. As fast as a drone comb is filled with brood, give it to these colonies to care for. Graft the cells in the usual manner and place them in these colonies for one day. The bees will begin drawing out the cell cups and feeding the larvæ; then put the cells in an upper story of a strong colony with brood in both stories, but with the queen below an excluder. Shift the frames every time new cells are given, putting the frames which are empty below and raising the ones filled with larvæ above. These colonies will finish the cells perfectly.

Do not forget to keep the drone or starting hives well supplied with nurse bees. When the flow of nectar is over, and the bees in other colonies begin killing the drones, collect all of the brood and place in these drone hives. Then drones will never be lacking. To get drone comb, place an empty frame in the brood-chamber between two frames of brood, during a flow of nectar. Do not put starters in this frame. Always remember that an old queen will lay drone eggs sooner than a young one. Keep a record of the number of the colonies in which the drone combs are placed, so that they may be more easily found. A few seconds in making records will save hours of time, needless walking, and labor. Every two days destroy any cells which the drone hives start from their own brood. This is very important.

FORMING NUCLEI AT HOME.

Take a frame of brood and a frame of honey, together with the adhering bees, and place both in a nucleus hive. Stop up the entrance, brush in half a frame of young bees and cover with a tight screen for 24 to 48 hours—in hot weather, never more than 24 hours. Then open the entrances and take off the screens after it is too dark for bees to fly. If this is done earlier, some will be lost and others robbed out.

Morgan, Ky.

MIGHTY POOR JUDGMENT ON THE PART OF THE BEES

BY RICHARD S. KIRCHBERGER

I have kept bees only a few years, and now have 8 colonies. This comb shown in the illustration was found about 150 feet from my hives, built in some wild shrubbery—absolutely in the open, with no protection whatever. It was built on a young



An unusual amount of comb for an outdoor colony.

wild black cherry and a wild honeysuckle. The weight of the comb pulled the branches down until the bottom of the comb touched the ground. The comb measured about 16 in. long by 12 wide. There was not a particle of honey left in it when found, and the bees, of course, were all frozen.

Highland Park, Ill.

Heads of Grain From Different Fields



THE BACKLOT BUZZER

Aunt Bertha Buckwheat says she doesn't believe it is possible to cross the bee with the lightning-bug so it will work nights, but she does think somebody ought to invent glasses for them so they could find a little more honey.

HM!

(There is nothing about bees in this. It is intended primarily for Don Marquis of the New York Sun, who, of course, will never see it, and, incidentally, for three other gentlemen who may.)

"It's so easy it's absurd,
Here a word and there a word—
Webster's done the work, you know"—
Don Marquis admitted so.

So there's nothing left for the poet to do
But spend the best part of a lifetime or two
Feeling his subject deep down in his heart,
Forming and shaping itself to his art;
Throbbing, himself, with the pulse of the
thing,

Helping it grow and hearing it sing;
Nothing to do but put in and cut out,
Polish it up and turn it about;
Nothing to do but build a new phrase
With smoother or swifter or winsomer ways;
Nothing to do but listen and feel;
Make of one verse a sabre of steel;
Make of another a shaper of wills;
Make of another a call from the hills;
Make of another a murmuring rest;
Make of another a dream-haunted quest;
Nothing at all for the poet to do

But labor and love for that lifetime or two,
Yielding his part to a rhythmical whole,
Giving his brain and his heart and his soul,
Giving his life and giving himself,
And then get put on a separate shelf!

Nashville, Tenn.

Grace Allen.

Beeway or Plain Sections.

Dr. C. C. Miller:—Which is the best section to use—the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ inch plain, the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ -inch four-beeway, or the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ -inch two-beeway? I mean, which is the best in regard to swarm control?

I have ten colonies of bees; two colonies have three-banded Italian queens; the other eight colonies are the common black bees. Now, I want to Italianize the black bees, and on account of expense I want to raise my own queens. Is there any way by which I can keep the black bees from mixing with the yellow ones? How can I get the queens mated with the yellow drones?

Antioch, Okla.

Baxter Burnett.

I don't think either section you mention is the best. The one that is in more general use than any other is the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ two-beeway. The fact that it is used more than any other, in spite of strenuous efforts having been made to push others ahead of it, is pretty good proof that beekeepers in general believe it best. So far as swarm control is concerned, I doubt if there's any difference.

So long as there are other bees within a mile or two of yours you will find it difficult to keep yours pure. You can, however, control the drones in your own apiary by allowing them to be reared only in Italian colonies. In other colonies you can keep the heads shaved off all drone brood as fast as it is sealed, or, better still, cut out all drone comb and patch worker comb in its place. One thing in your favor is that, when you rear a young queen from an Italian mother, even if the young queen mates with a black drone, the drones that she rears will be pure Italians. By persistently rearing queens only from pure mothers you will gradually work out the black blood. It may be well also to mention that the first cross will generally be found as good gatherers as the pure bloods.

Marengo, Ill.

Dr. C. C. Miller.

What is to be Done with the Froth?

What is usually done with the froth that accumulates on the top of extracted honey? Is it of any value?

Do bees that are wintered in a cellar have to be put back on their identical stands in the spring?

C. C. Brinton.

Turkey River, Ia.

[The froth that rises to the top of the honey is not of much use, altho it would not need to be thrown away necessarily. It

could be thinned down with water and fed back to the bees.

It has been definitely proven that colonies wintered in the cellar do not have to be put back on their former stands. After so long a time in the cellar the bees mark the new location very thoroly, and there will be no more mixing up than if they had been located where they had been the previous season.—Ed.]

They Just Ate 'Em Up.

A year ago last April I put on three supers of sections—one on each of three hives. Two of the colonies were strong, while the third was not so strong. Each super contained full combs (not foundation) that each colony had made the year before. The bees put nothing in them that year, and so last May I put the combs on again. When I looked thru them in June there was not a vestige of comb in either of the supers—not even propolis. What did they do with it? Work it over, down in the brood-nest? I never heard of nor read of the like before.

Colchester, Ill. J. C. Schaufele, M.D.

[There is just a bare possibility that mice may have gnawed these combs down, altho we think it is more likely by far that, being kept as long as this, the wax had become very dry and fragile, difficult for the bees to work. This would be especially true if the wax had been kept in a cold place during the winter. Under such conditions the supers, being put on in May, when the bees probably did not need the extra room, they amused themselves by gnawing out the combs. We know that bees will sometimes gnaw combs and gnaw foundation if it is given them at a time when they do not need it; but we do not remember to have seen a report of whole supers of combs gnawed away.—Ed.]

If at First You Don't Succeed—

Five years ago I cut a bee-tree; and as I did not know how to take the bees out I sawed the tree off at both sides of the cluster, nailed a board on both ends, stopped up the hole that the bees went in and out of, and then loaded it in a wagon and hauled it home to put in the orchard. They did not do well, however. I was young, and kept fooling with them till they left the stump and went to the timber.

I was determined to keep bees. The following year I got four or five more stumps of bees, and, of course, they did not make much honey that year, but they wintered all right in those stumps. The following spring an uncle of mine who was a beekeeper, and knew more than I did, helped me transfer one colony to a hive, and I transferred the rest.

I had better luck that year. The bees made considerable honey and increased to seven. Then I rented nineteen more for the next year for half the honey and half the

increase, but did not make anything. My share of the honey just paid for the supplies that I bought. I had only about 675 lbs. of honey that year with which to buy so much, as I was just starting out. My share of the increase, with my old colonies, made nineteen in all.

About that time I subscribed for Gleanings, bought books, and secured all the information I could. I did not keep the rented bees any longer, but kept my own bees. Last season my bees increased to thirty-three colonies and averaged fifty pounds of honey each, spring count.

I am going to build an extracting-room next fall if my bees do well. I have an extractor, and use a steam uncapping-knife, and run for both comb and extracted honey.

Willow Creek, Mont. Jay E. Huller.

No Division-board for Me.

If I were going to use ten frames I would dispense with the division-board and use two springs, one on each end of the frames, against the wood or metal spacers. There would be nothing glued fast then when the two springs were removed.

On the other side, there is no bee-space between the wall and frame so the bees would put in some bee-glue here, which would be a nuisance to overcome. Cut one metal spacer in two, and push the metal spacing-frame against it, and tack it fast. If using the Hoffman wooden spacer, then tack fast a thin piece of wood against the inside of the hive so a bee will have plenty of room to get thru.

Highland, N. Y. Victor G. Berrian.

Cats Have Nothing on Bees in the Matter of Lives.

A few days ago I was walking around in my apiary, and found one of my colonies dead, and most of the bees were on the bottom-board. I took off the cover to make an examination to see what caused them to die, and found that they had starved out. The temperature was 10 below freezing. I removed some of the frames and searched around for the dead queen, and brought her to the house to show her to a friend. I was grieved over the loss of my queen, but I laid her on the table, and the first thing I knew she was crawling up the window. I thought I would see what I could do with the rest of them, so I brought the hive into the house by the stove, and in a few minutes the bees began to move. I sprinkled some warm syrup on them, and in a few minutes they crawled up on the frames. I filled two frames full of syrup and kept them in the house two days, and in five days the queen had laid three frames of eggs. How long can a bee live after starving to death? I will never dump any more dead bees out on the ground in the winter until I know they are dead for good.

Roanoke, Va.

Henry S. Bohon.

A. I. Root

OUR HOMES

Editor

She hath done what she could.—MARK 14:8.

Their works do follow them.—REV. 14:13.

This woman was full of good works and alms deeds which she did.—ACTS 9:36.

In *Our Homes* for August 15, 1915, I gave an obituary notice in regard to the life of my brother-in-law, Mr. James G. Gray; and in that article I had considerable to say about his wife, my sister, Mrs. Eliza J. Gray. Little did I think when dictating that article that this sister, too, should so soon follow her husband. But as she lived to be 82 years old, we can thank God for the long life, and especially for the *good* life, she lived. I mentioned in that article that my sister began teaching school when she was only sixteen years old, and wearing short dresses; and she taught the school very successfully, walking out to it a couple of miles in the country, and back again at night. You may readily infer that she had considerable of what the world calls "grit" or she would not have thought of undertaking such a responsibility at such an early age. It was characteristic of her, not only in childhood, but all thru more than four-score years of life, to push ahead, especially when things in this world of ours did not seem to be what she thought they ought to be. In her lifelong disposition to do her duty, whether it hit friends and relatives or not, she sometimes made a mistake (like the rest of us), and therefore had *some* enemies as well as a host of friends.

When I was about twelve years old, a younger sister and I "went to school" to sister Eliza. I well recollect one afternoon when she had reproved me once or twice without doing much seeming good. I had a sort of idea that, as she was my sister, she would be a little lenient on that account. Finally, fixing her eyes on me she said, "Amos, you may take your books and go home and stay there until you can come back and obey the rules of the school."

I think I attempted some objection, knowing that my father and mother would insist on knowing the full facts in the matter. But she shook her head decidedly, and I obeyed orders. As I think of it just now, I feel ashamed to admit that I was *not* always a diligent pupil; but in that particular country school district there were some bad boys, and, I fear, some bad girls too, who needed a good wise teacher, and I began to catch the general infection somewhat. My impression is that my sister united with the church at quite an early age; but, like many other professing Christians, in time she became what might be

called more or less "worldly." But when the Woman's Crusade broke out she was one of the first to enlist, and she went into it with vehemence. At that time I myself was in the habit of taking a glass of beer occasionally, as I have heretofore explained. Mrs. Gray took me in hand so effectually that I do not think I have ever tasted beer since the crusade started in the spring of 1874.

By the way, Mrs. Gray has all her life been not only a kind sister, but has, at times, especially since my mother has gone, exercised a maternal influence over me. Now, please do not smile, any of you, when I give you just one illustration, as the moral may have a good influence over some of the newly married men and women of today. When Mrs. Root and I began life together we made our plans, which is the wise and proper thing to do. And among other things we thought it would not be best to be burdened with "little prattlers" right at the start. But we soon discovered, like many other young couples (at least I hope so) that often, altho "man proposes, God (in his loving kindness) disposes." Mrs. Gray came into our home one morning when we two, young husband and wife, were wearing long and despondent faces. When she inquired what the matter was, and had been told, she replied something like this:

"Why, you poor foolish young couple! a baby in the household will be the very best thing that *could* happen. If it should be a boy, that boy will be, in just a few months, the sunshine of your home and the delight of your lives, perhaps clear down to old age. Instead of looking sad and sorrowful, go down on your knees and thank God for this new revelation of his loving kindness and wisdom."

It proved to be a boy, and we called him Ernest; and he was in very truth a delight and joy to us and the life of our household. I have told you how I used to show him the pictures in the *Scientific American*, and explain them to him, before he could talk. His antics and boyish jokes kept us laughing until we had no time nor inclination to worry about finances or anything else. In fact, he used to get off jokes on both father and mother before he could talk. And, come to think of it, I do not believe he has got over that trick yet. Those of you who know him have probably seen him avert trouble by some droll remark that set everybody laughing, and made them forget their differences.

I will not attempt to tell you what Mrs. Gray has done in her lifelong work as an officer in the Woman's Christian Temperance Union; but I expect to give you something in that line a little later. Since her husband's death she made a trip all alone to a state convention, and she was the only member present of the old original crusade of 1874. Her picture appeared in many of the dailies and in the temperance journals. Below is a clipping from the *Medina Gazette*:

Mrs. Eliza J. Gray, one of the sainted mothers of Medina, died in Akron, Monday morning of this week. Mrs. Gray has for many years been one of the conspicuous figures of Medina, having more than a local name for her temperance and W. C. T. U. work.

Eliza J. Root was born of sturdy New England stock, the daughter of Samuel and Louisa Hart Root, being one of seven children. She was born Sept. 17, 1834. At the age of nine years she moved with her parents to Mogadore (near Akron). She was educated in the public schools, but her education was supplemented by self-culture all her life. At 16 years of age she began teaching, and was united in marriage to James G. Gray at the age of 19, Jan. 19, 1853. Mr. Gray was at the time instructor in Folsom's Commercial College, Cleveland. To this union four children were born.

At the time of the famous "Crusade" in 1874, Mrs. Gray, with her family, was living in Michigan and engaged in the activity of the work there, moving a little later to her present home, Medina. She has been state treasurer of the W. C. T. U., serving for three and one-half years, and state superintendent of the literature department many years. She also has been a most efficient superintendent of the Demorest contests in Ohio, retiring only on account of failing health, and a loyal supporter of the Prohibition party, bearing criticism and even social ostracism with remarkable Christian spirit. With time and money at her disposal, she used both at all times for the advancement of the cause to which she had given herself. She was a devoted member of the Congregational church.

Her death occurred just before our return from Florida. It occurred so near the time that we had picked on for our return that we knew nothing about it until we reached Medina on the morning of April 20. As the children gathered about us, after the greetings were over I remarked that I must run right down and see my sister. When they exchanged glances without replying immediately, my heart began to sink, and then some one said, "Amos, we are sorry to tell you your sister has been worse."

I replied, "Dear me! I shall have to hasten right down."

Then some one added slowly, "She has been very *much* worse. You cannot see her."

Then another one added, "Amos, your sister has gone to her reward."

As in the case of a former sister, I could not take it in all at once. I could not realize it. Many of you know, dear friends, how such things affect us, especially when we

are getting to be old; and it has now taken days and even weeks for me to *realize* my loss. When I am upstreet on some errand I almost unconsciously start to go down to that well-known home; and when I open my mail, without thinking I say to myself, "Oh there! Eliza must see that." And then somebody asks in a letter about some phase of the prohibition work where I am not well posted, and I say to myself, "I will just carry that letter down to Eliza, and she can give me all the facts in the case."

Of course, I thank God again and again that she was permitted to live a good long life, and that it was always a busy life. Eliza, as I firmly believe, directed all her efforts to benefit poor and ailing humanity. In the language of one of our texts, "She hath done what she could;" and the result of her earnest and busy lifework will follow on thru generations to come. And the concluding text well applies to Mrs. Gray. She contributed to temperance and missionary work thru all her busy life; and altho she earned quite a considerable sum in different ways, together with her good husband, if I am correctly informed it was practically all given to the benefit of humanity, thru different channels devoted to the cause of temperance.

FRICITION MATCHES; WHEN INVENTED.

Dear Mr. Root:—I know you wish to be accurate in dates as in everything, so I call attention to your second note, bottom of page 641, GLEANINGS for Aug. 1. You say "friction matches were not invented at that early day," etc., 72 years ago. The Century Dictionary, under "Friction Matches," says they were invented in 1827, and elsewhere that they were in pretty general use in 1830. I was born Feb. 11, 1837, and remember distinctly that they were cheap and plentiful in Hudson in 1842, and that my mother told of the days of her girlhood when they had none. Your people used coals as more convenient than matches for burning sulphur at the beehive, I presume, and not because there were no matches. I am three years older than you, but cannot remember when friction matches were not plentiful and cheap.

Hudson, O., Aug. 9. W. I. CHAMBERLAIN.

Many thanks, my good friend, for correcting my mistake. When I said "invented" I meant they had not yet reached our log house in the woods. I distinctly remember my brother going to a neighbor's to get a shovelful of coals because the fire was out; and I also remember later when father brought home some matches from town—the first the family had ever seen; and what a curiosity it was to see my father start a fire with the queer-looking things plentifully coated with brimstone as we discovered when we got too near! The roads were so muddy at that early day, and in such bad repair, that we did not get to town very often; and I fear we did not have a weekly

paper to tell us what was going on in the world. Later on I remember when Mr. Barber (father of the millionaire) had a match-factory between Akron and our Mog-

adore home; and my aunt Harriet worked for him. In fact, I am not sure but she was the first girl employed in Barber's little brick match-factory.

HIGH-PRESSURE GARDENING

SOME GLIMPSES OF OUR FLORIDA GARDEN.

Ever since I was big enough to get a look at things outdoors I have been interested in seeing things grow. My good mother was my first teacher in calling my attention to God's wonderful handiwork in making it possible for the tiny seeds to come to life and grow, and I believe I have always had a garden. I am particularly interested in plants that make rapid growth—especially so, since in Florida success with poultry depends largely on giving them a generous supply of green stuff for food. Two plants during the past winter have given me much gratification in the rapidity of their growth. The first is the collard. I believe they are grown largely in Georgia and further south. I am told they are a favorite with the colored people. Some time in February I sent by mail for one hundred collard plants. They started right up and grew in almost no time; and the severe drouth in February did not seem to disturb them a particle. As we had more plants than we had room for I set them in various places all over the garden; and in the poorest ground, with almost no fertilizer, they made great bushy plants in an astonishingly short space of time.

Figs. 1 and 2 show the collard. The photographer threw his hat down by the side of one so as to give an idea of the relative size of the plant, and you can see where I placed my hand on some of the foliage. Well, I have already pulled great armfuls of leaves from these plants for the chickens. I pulled off the lower leaves, of course; but

it seems the more leaves I pulled off, the faster they grew. Some of the midribs of the leaves were so large the chickens could



No. 1.—A Georgia collard, about sixty days after setting out the plant.

not readily break them up; but after they had eaten off the leafy part I took those midribs in my hands, holding as large a bundle as I could compass, and with a very sharp knife I slashed them in lengths of about an inch. In this way the chickens consumed every bit of the plant. Cut 2 shows two plants growing side by side.

The other plant I wish to mention is a radish I found in the catalog of the Burgess Seed Co., Galesburg, Mich. Here is a clipping from it.

SAKURIJIMA RADISH.

This is the giant radish from Japan. Often attains a weight of 15 pounds and sometimes 20 or 25. A great curiosity and a radish of extraordinary quality. Flesh solid, firm, and brittle, and of most excellent flavor. Planted in the spring, it keeps growing all summer, right thru the hottest weather, and never gets tough or pithy. Can be eaten during the summer, when it is difficult to grow other varieties, and can also be kept late in the



No. 2.—A couple more of the Georgia collards on comparatively poor ground.

winter if buried in sand. You will be pleased with it.

The upper picture shows one of the radish plants with its great bunch of foliage. The picture just below is the plant after I had pulled off a great armful of leaves. This radish, top and all, after being pulled up, weighed 13 lbs. The little holes in one side show where a hen and chickens picked into it. Well, the poultry will eat this great radish, top and all, every particle, if thrown out to them. The large midribs in the leaves, also shown in the cut, have to be cut up in short lengths, as does the collar. Where you have many of them, and a great flock of chickens, you will need a cutting-box or vegetable-slicer. You may recall what I said a year ago — whenever you set a hen, sow some radish seed; and when the chickens are old enough to eat "greens" the radish will be up just right. I think this radish is going to be a nice thing for poultry-keepers.

I notice by another catalog that this great root is good for table use when cooked as we cook turnips, and I think this may be true; but I did not have an opportunity to try it after reading the notice. I did notice, however, that slices from the great root are remarkably sweet—more so than the common small radishes.

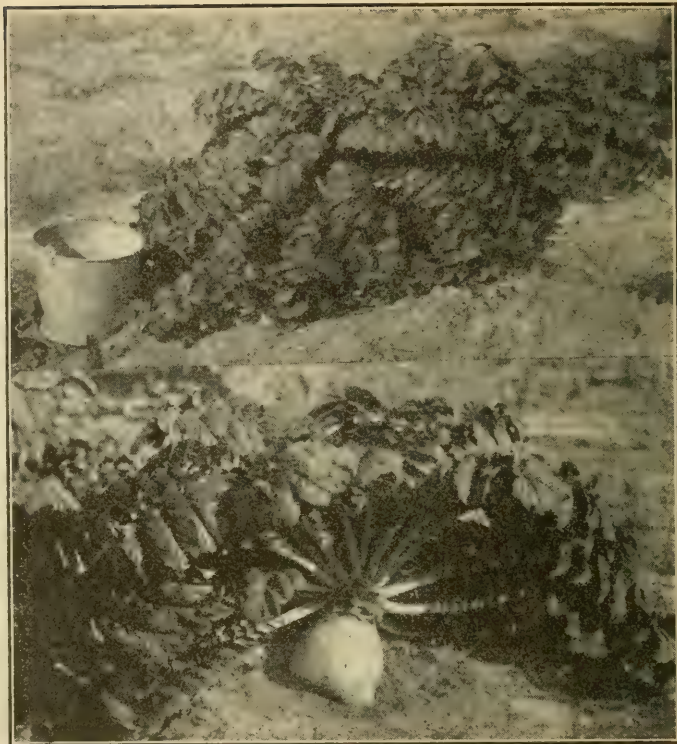
Since writing the above I find the following in the catalog of the Greenwald Seed Co., Lincoln, Neb.

SAKURAJIMA.

A Japanese radish of immense size. Some single specimens of this variety weigh as much as 15 pounds. In shape it is oval, with cream-colored skin and pure white flesh. Roots are cooked like turnips, but no strong taste accompanies them, such as is frequently present with cooked turnips. The plants should be thinned out to from 12 to 15 inches apart in the rows, so as to admit of full development; must be sown in May; takes whole season to develop roots.

SWEET CLOVER AGAIN.

An account of an experiment with sweet clover will disclose its valuable features. On the farm adjoining ours there appeared one year a heavy



No. 3.—Upper picture shows the plant before a part of the leaves were removed as in the cut below, to show how the root grows partly above and partly below ground.

growth of sweet clover covering about six acres. The owner of the farm saw no value in it, and offered it to us in exchange for a load of timothy from the field. We accepted the offer, and prepared to harvest it. The seeds had formed on at least two-thirds of the plants, and some of the stalks were as large as a man's finger, and over six feet in height. Nevertheless we cut it, drew it into a yard, and made two large stacks of it. Every pleasant day during the winter, cows, young cattle, and colts were allowed access to it, as much for the exercise, perhaps, as for the eating of it. Greatly to our surprise they evidenced unusual desire for it, eating it in preference to hay of better quality. They would nose around the bottom of the stack seeking the weeds; they would chew on the large woody stalks until an observer would think the yard was used as a dump ground for refuse rope material, as there were strings of fiber four to six feet in length lying around. All of the stock looked well, hair was shiny and sleek, and the colts were as lively as colts could be. The cows, too, continued to give good messes. Every bit of the two stacks was consumed.

The next spring the manure from the stock which had eaten the sweet clover, and the manure from where the stacks had stood was applied to a meadow that had a poor growth of timothy thereon. The grass started, and along with it appeared numerous tiny sweet-clover plants. These plants soon outgrew the timothy, and covered the ground, all from the seed which the manure contained. When haying was begun, that field was one of the first to be cut; and when it was cut, when about half in bloom, what a field of hay that was—one sea of green, and

a foot higher than the wheels of the mowing-machine. We did not allow it to go to seed as had the field of the preceding year, hence it was in fine condition—no large woody stalks at all. The clover was cured as red clover usually is, and with no loss of leaves. It was stored in the cow-barn, and fed the next winter to the milch cows. It was fed following alfalfa, and with no loss of milk, and not a bit of stalk remaining. The bitter taste that is ascribed to it did not seem to be there, as the cows ate every bit of it with very evident relish. As much milk was made from it as was made from the best clover or alfalfa we ever fed.

The yield per acre was certainly two tons of cured hay, and at no expense for plowing, fitting, or for seed. It was just a crop from the seed in the manure. This teaches us that if we raise it and feed it we must not allow it to mature, then feed it, and then apply the manure therefrom unless we want some sweet clover in that field. Hay buyers do not like it in the hay they buy, although they have bought it without adverse criticism. We have conclusive proof of its value as roughage for dairy cows, young cattle, colts, and horses, and advise any farmer having it on his land to give it a trial.—W. J. Hagar, King Hill, Idaho, in *Seed Sense*.

TEMPERANCE

A LETTER FROM ARTHUR CAPPER, GOVERNOR OF KANSAS.

We clip the following from the *Associated Prohibition Press Bureau*:

THE HOUR'S TREND.

The splendid message below from the executive of the great state of Kansas is most significant.

It shows that we are rapidly nearing a psychological hour of realignment and coalition for the great reform. Governor Capper's letter reads as follows:

STATE OF KANSAS

ARTHUR CAPPER, Governor.

Topeka, March 14, 1916.

Mr. F. D. L. Squires,

The Prohibition National Committee,
Chicago, Ill.

Dear Mr. Squires:—I have your letter of March 10. I am firm in the belief that the time is here when the best citizenship of this entire nation should combine in a movement to put the saloon from us for ever. We know that the saloon is making more human wreckage than all other agencies. Why should we, an enlightened people, a scientifically informed nation, continue to license this great curse, knowing it to be our greatest enemy, our greatest hindrance to national well-being, the greatest destroyer of thrift and happiness, the greatest promotor of vice, crime, and disorder, the greatest menace to the life of every boy and girl in the land, the greatest source of expense in government, and its most corrupting influence? Could anything be more reasonable, more sensible—more necessary—than national prohibition?

Very respectfully,

ARTHUR CAPPER,
Governor.

May God be praised that we have at least one governor who can come out thus boldly and squarely on the liquor question. How many other governors have we who are not afraid to stand by him?

ALMOST \$1500 A MONTH SAVED IN THE COST OF FEEDING THE PRISONERS IN JEFFERSON CO., ALABAMA.

The above saving came about by the smaller number of prisoners in the county jail after the county containing the city of Birmingham was made dry. See the clipping below, from the *American Issue*:

Sheriff E. B. Knight, of Jefferson County, the county in which Birmingham is located, presents the following figures in a letter dated April 1:

The total number of persons confined in the Jefferson County jail during the year 1915 was 1666 less than in 1914, the last year of saloons. The total number confined during the last half of 1915, the first six months under prohibition, was 725 less than that of the first six months under saloons, or 1487 less than the corresponding six months of the previous year under saloons.

From an economic standpoint it might be of interest to note that it cost the people of this state \$8975.40 less to feed the prisoners in the Jefferson County jail during the last six months of 1915 under the prohibition law than for the corresponding six months of the previous year under saloons, or a saving in this matter alone of \$1495.90 per month for Jefferson County.

Several thousand half-pint bottles of whisky were shipped from Cincinnati, Ohio, a few days ago to Birmingham. The whisky was packed in pianoboxes and billed as second-hand pianos. The consignment was seized, and Uncle Sam is now ferreting out the wholesaler who shipped the stuff. He can be prosecuted under several sections of the United States law.

After reading the above, just think of the absurdity of the statement of the liquor party that, if we do not have the saloon revenue, we cannot keep up our schools to educate our children! The cost of feeding prisoners is something, of course; but, dear me! what does the cost of feed amount to compared with keeping from 1000 to 2000 able-bodied men in jail for a whole year?

RUSSIA'S EMANCIPATION FROM ALCOHOLIC LIQUORS, ETC.

We take pleasure in clipping the following from the *Akron Beacon-Journal* of April 22:

RUSSIA TO WIN A DOUBLE VICTORY, SAYS AMERICAN IN CZAR'S SERVICE.

NEW YORK, April 22.—Dr. Philip Newton, an American who holds a commission of brigadier general in the Russian army in recognition of his work for the czar's troops, will leave here within a few days for the eastern theater of war. He takes with him fifteen ambulances presented by Americans to the Russian army. Dr. Newton looks forward to a double victory for the Russian empire when the present war shall have ended.

"Russia is already victorious in a war greater than the one she is waging with the central powers," said Dr. Newton. "This glorious victory was gained in a single day by the czar's order prohibiting the use of alcohol within his empire. Great will be the

toll of soldiers killed on the battlefields, but the number of people saved thru the abolition of alcohol will be much greater.

"The change for the better in the Russian people is manifested in many ways. For instance, the stress of war usually causes an increase in the number of insanity cases. War and absolute prohibition started about the same time in Russia, but the number of insanity cases has actually diminished since that time.

"Economically the change has worked wonders. This is forcibly demonstrated by the fact that since the beginning of the war the working classes have deposited a billion dollars in the savings banks of Russia. In the old days it was common for the workmen in factories to get drunk on Sunday or on any other of Russia's numerous holidays and waste a couple or three days recovering from the effects of strong drink. Now he is steady, works the entire week, and takes his wages home to his family. Both he and his family have more money than they ever had before, and so it is not surprising that the savings banks report many new depositors. Naturally the wealth of the country is increased by this great gain in the amount of work done.

"With brains cleared from the clouding caused by constant alcoholism, a decided mental development will occur in the peasant class. A logical result of this mental awakening will be a desire for greater knowledge. If the education of these people is conducted along sound lines, I do not think that the much-talked-of revolution will occur."

In view of the above, is it not strange that the United States of America does not seem to catch on and follow suit? May God be praised for what Russia has done for the whole wide world in the way of an object-lesson.

"READING BETWEEN THE LINES."

The Associated Prohibition Press Bureau sends out a sheet from which we clip the following:

United States Public Health Service has just issued a most commendable series of timely and seasonable suggestions to the citizens of America. They are issued under the general notation "Do You Know That—?"

We reproduce the text of this Bulletin below, with a brief suggestion as to the relation of its recommendations to the most important problem of health in our land today:

"DO YOU KNOW THAT—"

1. "Sags in roof gutters may act as mosquito-breeding places?"

True; and sags in civic conscience and civic government may and do act as breeding-places for the mosquitos of graft and the gnats of political corruption.

2. "America's most valuable crop is babies?"

Is that so? Then why vote longer for any party that protects the greatest baby-killer in the world's history?

3. "The public cigar-cutter is a health menace?"

And that public life-cutter—par excellence—the saloon, is the place where the cigar-cutter is usually found.

4. "The United States Public Health Service maintains a loan library of stereopticon slides?"

The slides ought to include a series showing the government partnership with the liquor traffic which is still destroying the health and besliming the environment of millions which this bureau is trying to help.

5. "The typhoid rate measures accurately the community intelligence?"

And the per-capita liquor consumption rate is a perfect thermometer of the public moral intelligence.

6. "Whooping cough annually kills over 10,000 Americans?"

Meanwhile 200,000 liquor saloons are making ten times 10,000 victims "cough up" daily until the most of them end by going on a "whooping" drunk. But that's no cause for excitement, of course.

7. "Bad housing produces bad health?"

And bad liquor (which is any kind of alcoholic poison) keeps millions badly housed.

8. "Rocky Mountain fever is spread by a wood-tick?"

But the whisky fever is spreading a thousand times faster than that with every clock-tick.

I wish to call attention to No. 4 in the above. Our nation's partnership with the liquor-traffic ought to be held up before our people and talked about and commented on until the head or heads of our nation get so wearied with our importunity that they will speedily wake up and do something. The expression, "besliming the environment of millions," hits the point exactly.

We clip the following from the *Methodist Episcopal Church Temperance Bulletin*:

BOOZE FOR BOYS! THE HOLLISTER DISTILLING COMPANY OF ST. PAUL CALLS FOR LISTS OF LADS.

The Hollister Distilling Company, at 129 East Third Street, St. Paul, Minnesota, wants the names of the little fellows in your town. If you will supply this list they will give you a quart of whisky.

The Martin County (Fairmont, Minnesota) *Sentinel* says that a rural mail carrier of that city has received a letter from the Hollister Distilling Company which says:

"I want the names of the boys in your town and on the rural routes. . . . I want as complete a list as possible, and a good list. If you will send me such a list I will send you your choice of a quart of old 1881 brand whisky or a quart of fine old imported Spanish Port wine. Get the postmaster to help you, also the bank cashier and the express agent."

The letter was signed by Elmer J. Jacobs, Manager.

When they say that "Prohibition doesn't prohibit," what do they mean? They mean that the American people do not have it within them to dominate the liquor evil. "Drink," they say, "is greater than your laws, greater than your constitutions, greater than YOU." Little do they know the exaltation, hot resolve, and burning determination of Columbia's heart this day.

Is it possible that there is no department of our government at Washington that can take up and punish an institution that sends out a circular like the above? May God help us when things come to such a pass that a distilling company is actually laying traps for our innocent boys.

A KIND WORD AFTER READING A SINGLE COPY.

I have read a copy of GLEANINGS, and it appeals to me as a first-class paper. I especially like Our Homes. Keep up the fight against the liquor traffic, as we need every bit of ammunition we can get hold of. The sooner we put this rotten business out of business the more God will prosper us. Billy Sunday has been down here preaching to Syracusans to give up "booze" and turn to Christianity. We have a much cleaner city by the work of this wonderful man. May God bless him and further him in his great work.

Syracuse, N. Y., April 1. FRANK M. WHITE.

BUY THE BEST

Why buy inferior queens when the best can be bought at the same price? You have heard of Dr. C. C. Miller's famous honey-gathering stock. How would YOU like to have a strain of bees like his? You CAN have. LISTEN, and we will tell you how.

We have made arrangements with Dr. Miller to furnish us breeders from his stock that has produced 266 sections weighing 244 pounds. These breeders are FINE. They are pure three-banded Italians, very gentle, and produce fine large daughters. Few people ever have a chance at the best in the world—so grasp this chance while you have it.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller, Marengo, Ill., March 1, '16.

Untested, \$1.00; tested, \$2.00; Select Tested, \$3.50; breeders, \$5.00 to \$10.00 each; virgins, 50 cts. each; 12 for \$5; 25 for \$100.

3-frame nuclei.....\$3.25

2-frame nuclei.....\$2.25

1-frame nuclei.....\$1.25

Colony in 8-fr. hive, \$6.00; 10-fr. hive, \$7.00.

Prices of colonies, nuclei, and pound packages do not include queens.

	1	10
½ pound bees.....	\$1.00	\$ 8.00
1 pound bees.....	1.50	13.50
2 pound bees.....	2.50	23.50
3 pound bees.....	3.50	33.50
5 pound bees.....	5.50	53.50

Queens of Our Strain.—Virgins, 25 cts.; untested, 75 cts.; 12 for \$8.00; 25 or more, 60 cts. Tested, \$1.25; 12 for \$13.50. Select tested, \$1.75 each.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested		during June, \$1.50; in July, August, and September, \$1.00
Select Untested		1.75
Tested		2.50
Select Tested		3.50
		1.25
		2.00
		3.00

Delivery will begin about June 1.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

Italian Queens

with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

Queens and Bees

Three-banded Italians.
Bred for honey and gentleness.

	1	6	12
Untested	\$.75	\$4.25	\$ 8.00
Select Untested	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00.

If wanted with queen, add price.

Bees in 1-lb. packages, \$1.25, without queen.

Perfect satisfaction and safe delivery guaranteed.

N. Forehand, Fort Deposit, Ala.

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, \$1.00; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.

FINE - ITALIAN - QUEENS BY RETURN MAIL

Select Golden and Three-banded, lined to select drones; hardy, prolific honey-gatherers. Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; dozen queens, \$9.00. Six or more at dozen rates. No disease. Safe arrival. I positively guarantee every queen to give reasonable satisfaction.

Chas. M. Darrow, Star Route, Milo, Missouri

"THE DOOLITTLE PLAN"

of working out-apiaries is fully described in
THE MANAGEMENT OF OUT-APIARIES

by the well-known author, G. M. Doolittle,

This is the new title of "A Year's Work in an Out-apiary," by the same author. This is the fourth revision of this work on this topic of management of outyards. If you haven't a copy of former editions you should not fail to get this edition. Price 50 cts.

Order now from the publishers.

THE A. I. ROOT CO., MEDINA, O.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio



ITALIAN QUEENS THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street

THREE-BAND ITALIAN QUEENS

They are bred from imported mothers. They are the best for honey-producing purpose; very gentle, not inclined to swarm. If you buy once you will buy always. **GUARANTEE** that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

Untested, . . . April 1 to July 1, 1, \$0.75; 6, \$4.25; 12, \$8.00
Select Untested, " " 1, .90; 6, 5.00; 12, 9.00
Tested, . . . " " 1, 1.25; 6, 7.00; 12, 13.00
Select tested, . . . " " 1, 2.00; 6, 11.00; 12, 20.00

L. L. Forehand, Fort Deposit, Alabama

If you are in need of bees, queens, or apiarian supplies, and want the best at a reasonable price, send for our catalog of 8 and 10-frame chaff hives, full colonies, nucleus colonies, or bees by the pound, shipped promptly. Tested Italian queens, \$1.50.

Untested, \$1.00.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.



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Make money breeding PR squabs. 1910 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, \$6 to \$8 doz. Start small, grow big. Many money customers. Write today. **PLYMOUTH ROCK SQUAB CO., 815 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

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E. W. Peirce,

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Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid

Clubbed with "Cleanings" one year, \$2.75

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Address the Medina Office

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

St. Regis Raspberry

Bears from June until November. Begins bearing same season planted. Colored plate and catalog giving full description sent on application. 1200 acres fruit plants and seeds. W. N. SCARFF, New Carlisle, O.

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
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in the
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Send twenty-five cents for a four-months' trial subscription

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PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

DAISY FLY KILLER



placed anywhere, attracts and kills alfflies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

FOR SALE.—Buckwheat honey at 7 cts. in new 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

RASPBERRY HONEY.—Thoroly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 per can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots.

ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less car lots. J. E. HARRIS, Morristown, Tenn.

WANTED.—A small quantity of apple-blossom honey. Send sample, also price asked. Address A. I. ROOT Co., 139 Franklin St., New York City.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY Co., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL Co., Clintonville, Ct.

HONEY LABELS.—New designs. Lowest prices. Catalog free. LIBERTY PUB. Co., Sta. D, bx 4E, Cleveland, O.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash.

C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

EASTERN MICHIGAN beekeepers especially are invited to send for my catalog of Root's goods and specialties. Try me for satisfactory goods, prices, service. ARTHUR RATTRAY, Almont, Mich.

FOR SALE.—Medium-brood foundation, 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash; 27 trade. J. F. ARCHDEKIN, Bordlonville, La.

FOR SALE.—A lot of hives; supers for 4x5x1½ sections or for shallow extracting frames. Must be sold. No reasonable offer refused. MRS. SNYDER, 121 Linderman Ave., Kingston, N. Y.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your orders.

K. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

Honey extractors and tanks. Two 6-frame extractors, capacity 140 gallons, \$9.00 each. Old-style reversible, but not automatic; never been used. Baskets can be taken out and used for honey-tanks if desired. Also four extractor-cans from which reels have been removed; capacity, 90 gallons as honey-tanks; \$5.75 each.

W. T. FALCONER MFG. Co., Falconer, N. Y.

SECTIONS \$2.85 PER THOUSAND.—*The Beekeepers' Review* is making a lead on sections, and furnish their subscribers with *any make you prefer* at from \$2.85 to \$4.50 per M. Order the same make of section as usual, but do not send us but \$4.50 per M. for the No. 1 grade, and 50 cts. less for the No. 2 grade. One make can be furnished as low as \$2.85 per M. for the No. 2 plain. *Do not buy a single supply* for the bees without first investigating our co-operative plan of buying. Write your wants to *The Beekeepers' Review*, Northstar, Mich.

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POULTRY

Some farmers in this locality have pure-bred eggs; 50 cts. for 15. Write FRED SALZMAN, Bedford, Ill.

White Indian Runner duck eggs for hatching. P. A. DAVIS, Rt. 2, Newton, N. H.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize winners. Eggs for hatching, \$1.00 for 13; \$2.00 for 30. E. B. BROWN, box 323, White Plains, N. Y.

FOR SALE.—Single and Rose Comb Brown Leghorn eggs for hatching, \$1.00 per 15, postpaid. Farm-raised stock. Also Indian Runner duck eggs, the white-egg strain. G. S. YOUNG, Rt. 1, Munson, Pa.

WANTS AND EXCHANGES

WANTED TO CONTRACT.—White sage bulk comb honey in carload lots only. Correspondence solicited. W. J. OATES, Los Flores Apiaries, Lompoc, Cal.

AUTOMOBILE.—20-horse-power roadster, just overhauled, new piston rings and new gears, to exchange for bees. Care of The A. I. ROOT Co., 915 Walnut St., Des Moines, Ia.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Farm of 13 acres, 100 hives of bees, mostly double-walled; Hoffman frame, run for comb and extracted, in one of the best locations of Schoharie Co. For further particulars address owner.
E. J. DIENST, Gilboa, N. Y.

VIRGINIA, N. C., W. Va., and Ohio farms at \$15 per acre and up; offer big value for the price. Best climate, markets, schools, and transportation. Good land and neighbors. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade, Roanoke, Va.

Twenty acres in San Joaquin Valley, California, in fruits, vegetables, alfalfa, with cows, pigs, poultry, and bees will pay you steady, substantial profits. Delightful climate, rich soil, good schools, churches, fine roads. Thrifty, hospitable neighbors. Write for free books. C. L. SEAGRAVES, General Colonization Agent A.T.&S.F. Ry., 1927 Ry. Exchange, Chicago.

FOR RENT.—80-acre farm, 60 clear; 6-room house and other buildings; 7-acre bearing orchard; 2-acre bearing vineyard. Suitable for apiary or anything you want to raise; 1½ miles to public school; 65 miles to St. Louis by railroad. Long lease to responsible party. Rent, \$100 per year.
E. BADER, 4109a N. Grand Ave., St. Louis, Mo.

MISCELLANEOUS

Quality Dahlias (northern grown). Send for catalog. MRS. E. L. G. DAVIS, Rt. 2, Newton, N. H.

ROZELLE SEED.—Plant Rozelle. Makes finest jam and jell. Read Mr. Root's article in January GLEANINGS. Sample package, 25 cts.
H. KAY, Rt. 1, Pasadena, Cal.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Try my MAPLEWOOD queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

FOR SALE.—25 hives bees at \$2.50 each, in yard.
S. V. REEVES, Haddonfield, N. J.

Three-band Italian queens, \$1 each; \$9 a dozen. EDITH M. PHELPS, Binghamton, East End, N. Y.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

Rhode Island Northern-bred Italian queens, \$1. Circular.
O. E. TULIP, Arlington, R. I.

FOR SALE.—Full colonies Italian bees, Root 10-fr. hives, \$5 each. L. H. ROBEY, Worthington, W. Va.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Mt. Hamilton Apiary, Italian Queens. Untested, 75 cts.; tested, \$1.50 and up. CHARLES WOELZ, 360 N. Lincoln Ave., San Jose, Cal.

FOR SALE.—Three-frame nucleus with queen, \$2.50; 3 or more, \$2.25; on Langstroth frame; commence to ship May 15. W. H. STANLEY, Dixon, Ill.

HOLLOPETER's strain of Italian bees and queens will be ready soon. A postal brings promptly descriptive price list for 1916.

J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. RAHN BEE AND HONEY CO., Halleybury, Ont.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—We offer to some one in this or nearby state, 50 to 300 colonies, 8-frame, first class.
THE E. F. ATWATER CO., Meridian, Ida.

FOR SALE.—Young laying queens, ready to mail, 1 to 100, 60 cts. each. Clean bill of health; 33 years' experience among bees. B. J. COLE, Fertilla, Cal.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb.
D. L. DUTCHER, Bennington, Mich.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Guaranteed to please or your money back. Circular free.
J. I. BANKS, Dowlstown, Tenn.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Now booking orders for three-frame nuclei, Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction.
S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens about May 1. Select tested, \$1.25; tested, \$1.00; untested, 70 cts.; dozen, \$8.00; select untested, 80 cts.; dozen, \$9.00. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

FOR SALE.—Three-banded Italian queens and bees after May 25. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12. Write for circular and price list.
ROBERT B. SPICER, box 181, Wharton, N. J.

FOR SALE.—Fine Italian queens and bees. Untested, \$1.00 each; 6 for \$5.00; dozen, \$9.00; \$60 per 100. For pound packages, see my large ad. in GLEANINGS for April 1 and 15.
J. F. ARCHDEKIN, Bordlonville, La.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.
G. W. MOON, 1904 Park Ave., Little Rock, Ark.

Order queens now for delivery by return mail; three-banded Italians, the business bee, and gentle; disease unknown in this locality; fully guaranteed. Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00.
M. F. PERRY, Bradentown, Fla.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; \$6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

NO QUEENS, UNTESTED, BEFORE JUNE. To my Customers:—I have all the orders I can fill for untested queens to June 1. The orders of those who want to send their orders for June 1, and after, I will take care of; but do not expect queens before June. Thanking all for orders,
J. B. BROCKWELL, Barnetts, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. **H. W. FULMER**, Andalusia, Pa.

Let us send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want, we shall be glad to write you what the express will amount to. **R. V. & M. C. STEARNS**, Brady, Tex.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. **THE DEROY TAYLOR CO.**, Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.

M. BATES, Rt. 4, Greenville, Ala.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. $\frac{1}{2}$ -lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. **C. B. BANKSTON**, Buffalo, Leon Co., Tex.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted.

J. W. SHERMAN, Valdosta, Ga.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. **C. W. PHELPS & SONS**, Wilcox St., Binghamton, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

MULLIN'S UNRIVALED ITALIAN QUEENS.—Gentle and prolific, three-banded, and one of the best honey-gathering strains. After May 1 to July 1, untested, \$1.00; \$9.00 per dozen; special rates after July 1. Try one. You will want more.

O. S. MULLIN, Holton, Kan.

Three-banded Italians, ready after June 15. Will book your orders now with 10 per cent cash down. Queens, untested, 75 cts. each; \$8 per doz. Nuclei, 1-fr., \$1.50; 2-fr., \$2.25; 3-fr., \$3.00. Full colonies, \$7.00 each. **EGGERS APIARIES CO.**, Rt. 1, Eau Claire, Wis.

Queens, ready in May. Northern-bred three-banded Italians, bred for gentleness, wintering, and honey-gathering. Select untested, \$1 each; 6, \$5.00; select tested, \$1.75 each. Send for price list and free booklet, How to Transfer, Get Honey, and Increase. **J. M. GINGERICH**, Kalona, Ia.

FOR SALE.—North Carolina queens ready in May. No better honey-gatherers reared. Beautiful, prolific; no disease; 80 per cent guaranteed purely mated. Untested, \$1.75; dozen, \$7.50; select untested, 1, \$1.00; 1 doz., \$9.00; tested, \$1.25; select tested, \$1.50; extra select, \$2. **H. B. MURRAY**, Liberty, N. C.

FOR SALE.—Early delivery of three-band Italian queens, pure mating, I guarantee. Any number for only 75 cts. each. These are bred from the best stock and by the best methods. No disease. We are better prepared than ever before to fill orders promptly. **W. D. ACHORD**, Fitzpatrick, Ala.

If you want a queen for that queenless colony, we can send it to you by return mail. Young tested queens, \$1.00, \$12.00 per dozen. Untested, \$1.00; \$9.00 per dozen. We breed the three-band Italians only, and we breed for the best. Our thirty years of queen-rearing proves this. We never had a case of foul brood in our apiaries, and we guarantee every queen sent out by us.

J. W. K. SHAW & CO., Loreauville, La.

Queens now ready. Golden and three-band Italian queens. I shall do my best to fill all orders promptly. If any queen fails to give satisfaction I will replace her free. Untested, 75 cts. each; six for \$4.00. Send all orders to

E. A. SIMMONS, Greenville, Ala.

A daughter of one of *Dr. Miller's best honey queens*, and the *Beekeepers' Review* for 1916 for only \$2.00. A daughter of one of the very best honey-getting queens selected from 1100 colonies worked for extracted honey, from the yards of **E. D. Townsend & Sons**, and the *Review* for 1916 for only \$1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy.

THE BEEKEEPERS' REVIEW, Northstar, Mich.

Carniolan, Golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention **GLEANINGS**. **I. N. BANKSTON**, box 315, Buffalo, Tex.

Three-banded queens and bees by the pound, ready now. One untested queen, 90 cts.; \$9.00 per doz.; \$17.50 for 2 doz.; \$65.00 for 100. Tested, \$1.50 each; fine breeders, \$5.00 each; 1-lb. swarm with fine queen, \$2.25 each; without queen, \$1.50 each; 50 for \$70.00; 100 for \$135. Add queens at above prices. I can furnish you in any quantity from one to 1000 queens or swarms of bees at above prices from April 15, thruout the season. Write to **Gurd Walker**, the Queen-breeder, your wants. He will give you a square deal. Box 18, Rt. 1, Jellico, Tenn.

Special for May, express prepaid on 10 or more swarms of bees in packages, at my regular price of 1 to 49, 1-lb. at \$1.50 each, and 2 lb. at \$2.50 each, and 50 to 500 of the above at 12 $\frac{1}{2}$ cts. less each. Untested Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. No reduction on quantity of queens for April and May. Quality, service, safe delivery, and no disease, I guarantee. We spare no labor nor money to produce the best for you is why we cannot make a lower price. Early swarms get the honey. We can deliver the goods with pleasure to both of us. **W. D. ACHORD**, Fitzpatrick, Ala., the successful package-shipper and queen-breeder.

BEEES AND QUEENS.—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey-gatherers. We breed this stock only, and guarantee delivery only to points west of the Rocky Mountains. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100; tested queens, \$1.25 each; \$12 per dozen; \$85 per 100. Three-frame nuclei, \$2.25 each; \$200 per 100. Bees, $\frac{1}{2}$ -lb. packages, 75 cts.; \$6.00 per 100; 1-lb. packages, \$1.00 each; \$85 per 100. Add price of queens to above packages. Complete catalog free on application. **SPENCER APIARIES**, Nordhoff, Cal.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei, with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can, therefore, supply you with the biggest and strongest nuclei you will be able to find anywhere. Send your order now, and money when you want them shipped. Can begin shipping April 15, or earlier, if necessary. Bees are all on standard Hoffman frames, and combs are all built on full sheets of foundation and wired frames. We guarantee bees to be free from disease.

THE HYDE BEE CO., Floresville, Tex.

This is the combination you have been waiting for: Your *Dr. Miller queen* introduced to a 2-lb. swarm; listen: Two pounds of bees, \$2.50; 1 *Dr. Miller queen*, \$1.50; the *Beekeepers' Review* for 1916 (we have the back numbers), \$1.00. Total amount, \$5.00. Send us only \$3.75, and your *Review* will begin coming immediately, and the two pounds of bees with a *Dr. Miller queen* introduced will be shipped by express in June. The reason we make this extraordinary offer is, we want to put the *Review* in the hands of every subscriber of **GLEANINGS**, and we take this way of introducing it to you. Address, with remittance, *The Beekeepers' Review*, Northstar, Mich.

Southwest Virginia five-band Italian queens, a fancy comb-honey strain; gentle to handle. They will please you. Try one. Untested, \$1.00; 6, \$5.00; 12, \$9.00.

HENRY S. BOHON,
Rt. 3, box 212, Roanoke, Va.

HELP WANTED

WANTED.—At once, young man to work with bees. Give age, and wages expected, in first letter.

M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

WANTED.—Helper in apiaries. State experience, age, and wages wanted, in first letter.

MATHILDE CANDLER, Cassville, Wis.

WANTED.—Man with some experience as helper in apiaries of 400 colonies. Please give age, experience, and salary expected in first letter.

JOHN B. AHLERS, West Bend, Wis.

WANTED.—Industrious young man of clean habits as helper in my beeyards this summer; will give results of my experience, board, and fair wages. Give age, weight, experience, and wages in first letter.

E. L. LANE, Trumansburg, N. Y.

WANTED.—Industrious young man, fast worker, and of clean mental and body habits, as a student helper in our large bee business for 1916 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.

W. A. LATSHAW Co., Clarion, Mich.

TRADE NOTES

Mr. H. C. Clemons, one of our advertisers, has moved from his old address at Boyd, Ky., to Rt. 3, Williamstown, Ky.

JAPANESE BUCKWHEAT.

We have available at Ashland, Mo., and subject to previous sale, twenty bushels of nice Japanese buckwheat which we offer at \$2.75 per 100 lbs., \$1.50 per bushel of 50 lbs., bag included. We have also here at Medina a limited amount of this variety as well as of silverhull, which we offer, while it lasts, at the same price. If in need of seed send in your orders while the supply is available.

PRICES ADVANCED ON VARIOUS ITEMS.

We announce the following advances in price of various articles listed in our catalog for 1916, to take effect from and after this date:

Beehive paint, \$2.75 per gal.; \$1.40 per half gal.; 75 cts. per qt.; 40 cts. per pint.
Tinned wire, $\frac{3}{4}$ -oz. spool, 4 cts. each; 5-lb. coil, \$1.20.

Crate staples and end-space staples, 20c per lb.

Three-wire strips for honey-boards, 18½ in. long, \$2.50 per 100.

Seven-wire strips for honey-boards 18½ in. long, \$5.00 per 100.

No. 3 eight-frame, 7-wire-and-wood honey-boards, 13½ x 20, \$4.00 for 10.

No. 4 ten-frame 7-wire-and-wood honey-boards, 16½ x 20, \$4.50 for 10.

No. 7 ten-frame 3-wire-and-wood honey-boards, 16½ x 20, \$4.20 for 10.

No. 8 eight-frame 3-wire-and-wood honey-boards, 13½ x 20, \$3.70 for 10.

These advances are made necessary by increased cost of materials, and a corresponding advance is made in the wholesale and jobbing prices. Other advances on metal goods will be announced in the near future.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for sample of foundation from any mill in the list which may interest you.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, 2½ x 10 hexagonal light-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0230, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0233, 2½ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, 2½ x 6 extra thin-super mill in very good condition. Price \$12.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0241, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.

No. 0246, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

THE A. I. ROOT COMPANY, Medina, Ohio.

SPECIAL NOTICES

BY A. I. ROOT

PLANT PROPAGATION; GREENHOUSE AND NURSERY PRACTICE.

The above is the title of a new book dated March, 1916. It contains 322 pages and 213 illustrations; so you see there are "pictures," one or more, on nearly every page in the book. This work is an attempt to take in every improvement up to date in the way of propagation of plants. I was pleased to see three pictures that looked familiar, and I found they were furnished by my good friend E. N. Reasoner, of the Reasoner Brothers' Palm Nursery, Oneca, Fla., close by our Florida home. In early childhood when my mother taught me how to plant seeds and watch them grow I was delighted. Later on, when I found certain plants could be grown without seeds I was still further delighted. You know how a woman grows geraniums and other plants from "slips." Well, this book is largely devoted to propagating by layers, grafting, inarching, etc. Short cuts and improvements in the propagation of plants are advancing so rapidly that it is a hard matter to know all about what is going on in the world, especially the greenhouse world. But Prof. M. G. Kains (Professor of Horticulture in the Pennsylvania State College) has done his work remarkably well. The book is published by the O. Judd Co., of New York. The price is \$1.50.

SOME GOOD BOOKS FOR A SMALL SUM OF MONEY.

In rearranging our office and stock of books on agriculture, etc., we found 15 copies of a book that made quite a sensation in 1885 and later. The title is "The Waters Led Captive." The book is devoted to a sort of sub-irrigation. Its author was an enthusiast, and as has often happened, put, perhaps, an extravagant estimate on his invention, or, perhaps, we might say, discovery. The plan was to make a sort of subterranean reservoir to hold water. This was filled with stones up to a certain height, and on top of the stones were put brush, straw, weeds, or anything that would rot and make humus; and on top of the brush and straw some stable manure. The ground was then filled up with soil. The theory was to permit the roots of the growing plants to go down thru the humus, brush, etc., and help themselves to water. In a clay soil water would almost always be found in these underground reservoirs more or less. With such an arrangement

I grew the finest melons and squashes I ever grew in my life. I made quite a success of it until the growth of our factories compelled us to dig up my "new agriculture." Father Cole claimed that the great trees of California were the product of underground water on a similar scale built by nature's handiwork. The book gives full directions, and is fully illustrated, with plans for the new agriculture in every back yard or dooryard. For many years we had a most excellent garden over these reservoirs. I hardly need add that slop from the kitchen, and sewage of every sort, can be turned into these reservoirs; and growing trees, especially fruit-trees of all sorts, respond wonderfully to such treatment. The price of the book was \$2.00; but for the sake of closing out the 15 copies left on our hands (by accident) we will make the price \$1.00 as long as they last.

One other book we have left is entitled "What to Do, and How to be Happy While Doing it." This book was put out in 1888, and is devoted mostly to market-gardening. It also has much to say about the "new agriculture." It tells how I managed and how I succeeded in astonishing Medina Co. and a good many other places by the possibilities of "high-pressure gardening." An appendix to bring the book up to date was put out in 1900. Many of our readers are doubtless familiar with this book. Quite a number of successful market-gardeners and florists who have built up a great business got their first start from the book "How to be Happy," etc. I remember one young man who became so enthused with it that he used to go over to see his "best girl" before they were married and read the book to her. Since then they, too, have built up a great business in the floral line. I refer to S. W. Pike, of St. Charles, Ill. We printed so large an edition of this book years ago that we have 1000 or more copies still on hand. The regular price of the book, cloth bound, was 50 cents; paper, 35. It contains 206 pages, and is fully illustrated. While the edition lasts we will make the cloth-bound copies 25 cents, postpaid; the same bound in paper, 15 cents. Or anybody who sends \$1.00 for GLEANINGS may have the latter postpaid as a premium; or anybody who sends us \$1.00 for a new name may have the cloth-bound copy postpaid as a premium.

A KIND WORD IN SPITE OF LOSS OF BEES.

I suppose "Pa Root" will soon be back with you again. Long may he live to carry on his work. Heaven bless him and you all. We have had a bad winter and very late spring. I suffered nearly a 50-per-cent loss in stocks this winter.

WM. WRIGHT.

New Westminster, B. C., April 20.

A KIND WORD FROM AWAY OFF IN CANADA.

I can hardly write on account of looking at the beautiful snowfall without. The snow is almost up to our window sills, and is as fluffy as down. The spruce and pine look like so many umbrellas with their limbs bent touching the snow beneath. It is a scene well worth any artist to paint. You might tell A. I. Root that Florida "isn't in it" for health and beauty compared to northern Ontario. We can enjoy two things at the same time, while he can have but one. We have the cold dry bracing winds without, while at the same time we enjoy the warm Florida weather by the fireside.

130 DUCK EGGS WITHOUT A MISS.

Our Indian Runner duck began laying the last week in February, and laid 130 eggs without stopping. The last day she laid two eggs. One of them had a soft shell. Altho I hatched several settings, the bees killed every one of them. The ducks would persist in going to the hives and rattling around the entrances with their bills.

"One man's meat is another man's poison." While A. I. Root enjoys his meals of fruit we enjoy our meals of flesh. We cannot raise apples, plums, or peaches successfully, but we can raise beef, mutton, and eggs, while our waters teem with fish and our woods abound with game. The man in the South eats fruit as a cooling food. The man in the North eats meat as a heating food. "Let not him that eateth despise him that eateth not." I think the trouble lies, not in *what* we eat, but that the most of us eat *too much*.

J. M. MUNRO
Slate River Valley, Ont., Jan. 13.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.

☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.

☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog mailed free to any address on request.

☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.

☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.

☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.

☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.

☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.

☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.

☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cts.

☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.

☐ SWEET-CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.

☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.
Please send me the items checked above.

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D.....

Town

State

SPECIAL BARGAINS

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE-HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of both 8 and 10 frame packed single and 5 in a package, which we offer, to close out, as follows: YW 5/8, one story, with frames, eight frame; 8 packages, one hive each, at \$1.75, and 12 packages, five hives each, at \$8.00. The same in 10-frame size, 2 packages, one hive each, at \$1.85, and 3 packages, five hives each, at \$8.50.

NO. 2 OR B GRADE HOFFMAN FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

METAL SPACERS SLIGHTLY DEFECTIVE.

In making the metal spacers for the metal-spaced frames there are a percentage which come out either sheared a little scant on one side, or with slight breaks in the tin where it is drawn up into the spacing-boss. These are hardly passable as perfect stock, but in actual use they will answer every purpose as a spacer. Rather than throw these into the scrap we will offer them while they last, including nails to nail them on, at 20 cts. per 100; \$1.80 per 1000. Transportation charges extra.

1½ H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1½-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTING OR CHUNK HONEY.

We are offering, while they last, the following bargains in nailed supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

200 D9/10, nailed and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100.

410 D8/10, nailed, and some painted two coats, some one coat; 273 not painted. Sell new for 90 cts.; offered at \$5.00 for 10; \$45.00 per 100.

180 8/10 supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first two lots are the 5½-inch supers with hanger cleats and shallow Danz. frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

ALEXANDER FEEDERS FOR EIGHT-FRAME HIVES.

The Alexander feeder as we now make it is adapted to either eight or ten frame hives. Formerly we made a shorter length for the eight frame than for the ten-frame hive. In cleaning up old stock we find 300 of these eight-frame feeders which we offer, to close out, at half regular prices—viz., 15 cts. each; \$1.35 for 10; \$11.00 per 100; \$30.00 for the lot.

TIN COMB-BUCKETS.

While these are listed in the catalog in one line at \$1.50 each, their convenience in carrying combs to the extractor shut up from robbers is not set forth. We have a surplus stock, and offer them, to reduce the number on hand, at \$1.25 each. You can place four Hoffman frames or five non-spaced frames of Langstroth size in each bucket.

JONES HONEY-KNIVES.

This is a form of honey-knife used largely in Canada, and preferred to the Bingham by those who have tried it. The blade is 1½ inches wide, and a flat V or triangular shape. We had a lot made to supply a call we had, and still have in stock 28 of them. We offer them at 75 cts. each. Mailed as a pound parcel when packed.

SHIPPING-CASES FOR 12 AND 24 SECTIONS.

When we discontinued listing shipping-cases to hold 12 sections we still had quite a stock of various styles on hand, many of which are still in stock. We have also some of the older styles of cases for 24 sections of various sizes. We offer these various cases to close out at the following bargain prices. Here is an opportunity to lay in a stock of cases preparatory to the honey crop near at hand at very low prices. None of these cases, except as noted, are large enough to take sections with cartons or corrugated liners, except the bottom sheet. 12-lb. 2 or 3 row cases with 2 and 3 inch glass for the 4¼ x1½, 4¼ x1½, 4x5x1½ sections, packed 50 in a crate at \$4.00 a crate; packed 10 in a crate at 85 cts. a crate. A few crates of cases for 16 sections 4¼ x1½ at \$4.50 per crate of 50 or 95 cts. per crate of 10. A few crates of cases for 24 sections, 4¼ x1½, 4¼ x1½, and 4x5x1½ at \$8.00 per crate of 50; \$4.00 per crate of 25, or \$1.70 per crate of 10. The 12-lb. safety cases, which we no longer list with safety cartons, and 2-inch glass for 4¼ x1½, 4¼ x1½, and 4x5x1½ sections, per crate of 10, \$1.20; per crate of 25, \$3.00. Without cartons, but including corrugated liners and glass, \$4.50 per crate of 50.

NO. 2 OR B GRADE SECTIONS.

We have a surplus stock of B grade sections in all the commonly used sizes and styles, and are behind on orders for No. 1 or A grade in some kinds. To insure prompt shipment it may be advisable to order B grades if you can use that grade. In beeway style the B grade costs 50 cts. per 1000 less than A grade, while in the plain or no-beeway styles the reduction for B grade is 75 cts. per 1000. The loss from unusable sections in B grade is very little more than in the A grade. Try them if you have not done so.

SWEET-CLOVER SEED.

We have a good supply of very choice hulled white-sweet-clover seed scarified for quick germination, requiring only 10 lbs. per acre for a good stand. We offer this for a short time to reduce stock at \$18.00 per 100 lbs. Now is the right time for sowing with a nurse crop to produce hay or bloom with seed next year. We have also choice hulled yellow which we will sell at \$15.00 per 100 lbs. A thousand pounds of hulled white for shipment direct from Des Moines, Iowa, not scarified, offered at \$15.00 per 100 for prompt acceptance.

HULLED YELLOW ANNUAL SWEET CLOVER.

This makes an excellent mulch crop in orchards, and at the same time helps to enrich the soil. It will bloom in 60 to 90 days after seeding. We have a surplus stock of seed which we are offering at \$4.00 per 100 lbs.; 25 lbs. for \$1.25; 60 cts. for 10 lbs., bag included to ship in.

THE A. I. ROOT COMPANY, MEDINA, OHIO.



Beauty PATTERN

**Twenty-five Cents for New
Subscription to Gleanings
Six Months and Premium
Pattern**

Select any Pattern as premium, sending 25 cents in stamps for a new six-months' subscription to GLEANINGS IN BEE CULTURE. Be sure to give the pattern number and size desired, and the complete address of the new subscriber whose order you send.

Canadian postage, 15c extra;

Foreign postage, 30c extra.

Selling price of Patterns, 10 cents each.



**The A. I. Root Company
Medina, Ohio**

1694.—Ladies' Skirt. Cut in 7 sizes: 22, 24, 26, 28, 30, 32, and 34 inches waist measure. It requires $3\frac{1}{4}$ yards of 44-inch material for a 24-inch size. The skirt measures 3 1-3 yards at the foot. Price, 10 cents.

1710.—Girls' Apron. Cut in 5 sizes: 2, 4, 6, 8, and 10 years. It requires $2\frac{1}{4}$ yards of 36-inch material for a six-year size. Price, 10 cents.

1720.—Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Size 36 will require 6 yards of 44-inch material for a 36-inch size. The skirt measures about 3 1-3 yards at the foot. Price 10 cents.

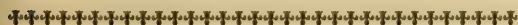
1716.—Ladies' Kimono. Cut in 3 sizes: Small, medium, and large. It requires $5\frac{1}{2}$ yards of 36-inch material for a medium size. Price 10 cents.

1702.—Girls' Dress. Cut in 4 sizes: 6, 8, 10, and 12 years. It requires $1\frac{1}{2}$ yards of 27-inch material for the guimpe, and $3\frac{3}{4}$ yards for the dress, for an 8-year size. Price, 10 cents.

1721.—Girls' Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. It requires 3 yards of 44-inch material for an 8-year size. Price 10 cents.

1706.—Dress for misses and small women. Cut in 3 sizes; 16, 18, and 20 years. To make as illustrated will require $4\frac{1}{2}$ yards of 44-inch material for full portions of skirt, vest, collar, sleeve extension and skirt yoke, and $3\frac{3}{4}$ yards for panels, sleeves, waist portions and drapery for an 18-year size. The skirt measures 3 1-3 yards at the foot. Price 10 cents.

1717.—Ladies' Dress. Cut in six sizes: 32, 34, 36, 38, 40, and 42 inches bust measure. It requires 6 yards of 44-inch material for a 36-inch size. The skirt measures about 3 1-3 yards at the foot. Price 10 cents.



HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas

THE COAST LINE TO **MACKINAC** DETROIT CLEVELAND, BUFFALO, NIAGARA FALLS TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A REAL VACATION The Water Way is the Only Way

The Great Lakes is the mecca for particular and experienced travelers on business and pleasure trips. The D. & C. Line Steamers embody all the qualities of speed, safety and comfort. The freedom of the decks, the cool, refreshing lake breezes, the commodious state rooms and unexcelled cuisine, make life aboard these floating palaces a source of enjoyment.

"D. & C. A SERVICE GUARANTEE"

During Summer Season the Two Giants of the Great Lakes, Strs. City of Detroit III and City of Cleveland III, operate daily service between Detroit and Buffalo; daily service between Detroit and Cleveland, also delightful day trips during July and August, as well as two boats out of Detroit and Cleveland every Saturday and Sunday nights during these two months. **FOUR TRIPS WEEKLY FROM TOLEDO AND DETROIT TO MACKINAC ISLAND AND WAY PORTS**—From June 25th to September 10th, **SPECIAL STEAMER CLEVELAND TO MACKINAC ISLAND. TWO TRIPS WEEKLY. NO STOPS ENROUTE EXCEPT AT DETROIT EVERY TRIP.** Daily service between Toledo and Put-in-Bay, June 10th to September 10th.

YOUR RAILROAD TICKETS ARE ACCEPTED

On D. & C. Line steamers for transportation between Detroit and Cleveland, Detroit and Buffalo, either direction.

Send two cent stamp for illustrated pamphlet and Great Lakes Map. Address
L. G. Lewis, G. P. A., Detroit, Mich.

DETROIT & CLEVELAND NAVIGATION COMPANY

PHILIP H. McMILLAN, Pres.

A. A. SCHANTZ, Vice-Pres. & Genl. Mgr.

All D. & C. Steamers arrive and depart Third Avenue Wharf. Central Standard Time.



Won
GOLD
MEDAL
at World's
Exposit'n
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isco

NEW KEROSENE LIGHT BEATS Electric or Gasoline **10 DAYS FREE** SEND NO MONEY CHARGES PREPAID

We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests by Government and 33 leading Universities show it common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. It's GUARANTEED.

Burns 50 Hours on One Gallon

Men Make \$50 to \$300 Per Month with Rigs or Autos

delivering the ALADDIN on our easy trial plan. No previous experience necessary: Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 37 lamps out of 31 calls." Thousands who are coining money endorse the Aladdin just as strongly. **NO MONEY REQUIRED.** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. Sample sent for **10 DAYS FREE TRIAL.** We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp **FREE** for showing it to a few neighbors and sending in their orders. Write quick for **10 DAY ABSOLUTELY FREE TRIAL.** Address nearest office.

MANTLE LAMP COMPANY 302 Aladdin Bldg. CHICAGO; NEW YORK CITY; PORTLAND, ORE.

Lights Entire Room

Largest Kerosene (Coal Oil) Mantle Lamp House in the World

MONTREAL or WINNIPEG, CANADA

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July		August and later	
Untested Queens.....	1 for 60 cts.; 12 for \$7.00	1 for 55 cts.; 12 for \$6.00	
Tested Queens.....	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Select Tested Queens...1	for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.			

Add price of queen. If any of our untested queens should prove to be mismated we are willing to replace her free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

BEE-LINE QUEENS GOLDEN AND THREE-BANDED ITALIANS

About 1000 Queens ready to go by Return Mail after May 15

From Caraway's prize-winning stock. Every queen purchased of me I will guarantee to give satisfaction. If she does not I will replace her with another queen or refund your money. They are hustlers, long lived, not inclined to build burr-comb, cap their honey white, and are not given to swarming, and are gentle to work with.

My bees and queens are winners of over 100 first premiums in the past eight years. This speaks for itself. If you are going to buy queens you cannot do better than buy the Bee-Line Queens.

Queens are postpaid, and safe arrival is guaranteed to all points in United States and Canada. No diseases of any kind in my apiaries.

State inspector's health certificate with each shipment.

PRICES FROM MAY 10 TO NOV. 1.

Italian Queens: Untested, one for 75 cts.;.....six for \$4.00;.....twelve for \$ 7.75
 Tested one for \$1.00;.....six for \$5.00;.....twelve for \$10.00
 Select Tested one for \$1.50;.....six for \$9.00;.....twelve for \$17.50
 Untested by the 100: May, \$70.00; June to November, \$65.00.
 Breeding queens. Fair, \$5.00. Extra select, \$10.00.

One-pound packages of bees:...One for \$1.50;...six for \$8.50;...twelve for \$16.00.
 Two-pound packages of bees:...One for \$2.50;...six for \$15.00;...twelve for \$29.50.

These prices are without queens. Safe arrival guaranteed on bees by the pound when they are not over six days in transit. No orders filled unless cash is sent with order. Prices quote on large lots for bees by the pound, also frame nuclei.

B. M. CARAWAY . Bee-line Apiaries . MATHIS, TEXAS

Reference: Mathis First State Bank, Mathis, Texas.

Gleanings in Bee Culture



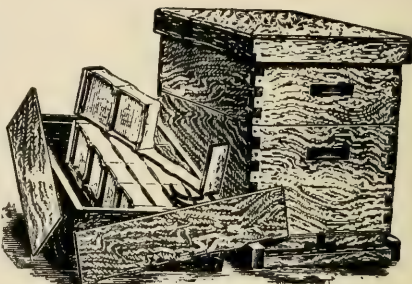
The Double-walled Massie Bee-hive

Surest Protection for Bees---Increased Supply of Honey---the Best Hive for any Climate



The Massie Hive for Comb or Extracted Honey

Furnished in the clearest of lumber, in either Cypress, White Pine, or redwood; all brood and extracting frames are made from White Pine.



The Dovetailed Hive for Comb Honey

THE VENTILATED BOTTOM admits fresh air into the hive, lessening the chance for swarming, and gives renewed energy to the bees. It is also equipped with a feeder without extra cost. Fifty years in the bee-supply business has shown us that the **MASSIE** is **THE VERY BEST HIVE**, and testimonials to this effect are received daily from those who are using this hive.

Why not give us a trial order? Satisfaction fully guaranteed. Early Cash Order Discounts..

We are also extensive manufacturers of **DOVE-TAILED HIVES** and all other apiarian supplies. If you are in the market for supplies be sure to get our prices before buying elsewhere. We will mail our large illustrated catalog and **SPECIAL** price list to any one upon request.

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**Bee
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free**

YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be *profitable* in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the **Blanke Bee Book**—send for it today.

Fine Poultry Book also Free

If you keep poultry too, ask us for illustrated poultry book; full of valuable pointers on poultry-raising as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., **ST. LOUIS, MO.**



By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c; with other goods, 70c.

OLD COMB AND CAPPINGS rendered into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

THE FRED W. MUTH CO.
204 Walnut Street Cincinnati, Ohio

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each

five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ALBANY.—Very little honey is moving on this market now. The extracted honey is all sold, and some comb honey unsold. This is the off month for this market. Demand will not begin again until August. Beeswax brings 28 to 30.

Albany, May 18.

H. R. WRIGHT.

INDIANAPOLIS.—Comb honey as well as extracted is moving very slowly at this time. This, of course, is due to the weather conditions. Comb honey is selling from \$3.50 to \$4.00 per case. Extracted is bringing 9 to 11 cts. We are paying producers 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, May 20.

WALTER S. POWDER.

CHICAGO.—Not enough is doing in the comb-honey market to make quotations really on. People who want a little, buy it; but speculation has ceased. Prices do not vary much, but sales are made chiefly around 13 cts. per lb. for the best white grades. Extracted is also dull, some going to manufacturers; but most of them are holding off to see what the harvest is to be, and it is difficult to make sales in any quantity. White grades range from 7 to 8, and the ambers 6 to 7. Beeswax brings 30 to 32.

Chicago, May 17.

R. A. BURNETT & Co.

KANSAS CITY.—The demand for honey, especially comb honey, is very light, and stocks are very light. We quote No. 1 comb honey, 24-section cases, \$3.00; No. 2 ditto, \$2.75. Regarding extracted honey, the demand is fairly good. Light-amber alfalfa is selling at around 7 to 7½ cts. a pound. Some grades of dark amber are selling as low as 6. Stocks are very light, and we expect to see all of the old honey cleaned up before the new comes in.

C. C. CLEMONS PRODUCE CO.

Kansas City, May 15.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: No. 1 per case of 24 sections, \$2.93; No. 2, \$2.70. White extracted, 8½ to 8¾; light amber, 8 to 8¾; amber, 7 to 8. We pay 26 cts. per lb. in cash and 28 cts. in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, May 6.

F. Rauchfuss, Mgr.

ST. LOUIS.—The local demand for comb honey has been very light, but the demand for extracted honey has improved considerably. We quote southern strained amber in barrels, 5½ to 6; in cans, 6 to 7; dark, ½ to 1 cent per lb. less; No. 1 white comb honey, 24 sections to the case, \$3.25 to \$3.50; bright amber, \$2.50 to \$3.00; under grades, less. Beeswax is steady at 30½; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, May 22.

ZANESVILLE.—There is no particular change in the honey situation here, the demand being about normal for the season, and prices practically unaltered. In a small way best white comb brings around \$4.00 a case. Some western sells for \$3.75. Jobbers are allowed usual trade discount. Extracted is in limited demand at prices as heretofore, 9 to 10 cts. for best white; darker grades correspondingly less. For good clean beeswax we pay producers 29 cts. cash, 31 trade, and invite shipments on this basis.

Zanesville, May 16.

E. W. PEIRCE.

MATANZAS.—Honey today is bringing 45 cts. per gallon.

ADOLFO MARZOL.

Matanzas, Cuba, May 17.

Watchful Waiting Causes You to Get Left

So Buy your Bee Supplies Now.

Promises to be a Honey year. Ship on day of receipt of order.

Lewis' Beeware—finest in the world.

Send for our 1916 Catalogue.

We do Beeswax rendering. Ship us your old Combs and Cappings. Write for prices.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

Queens! Queens! Queens!

We will make a specialty of shipping Queens, Nuclei, and Full Colonies from Florida during the present month. We are breeding from queens that produced a surplus of 300 pounds per colony in a 24-day honey-flow in Florida, and that are unexcelled for prolificness, gentleness, and honey-gathering.

When you order queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from our famous Honey-gathering Strain for Queens, Nuclei, and Full Colonies promptly, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. Write for special price on orders of 50 or more. We ask you to give us a trial and let us prove to you that our stock is unexcelled by anything on the market.

Island-bred Italian Queens

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00
Tested Breeding Queens,	\$5.00	and \$10.00 each.	

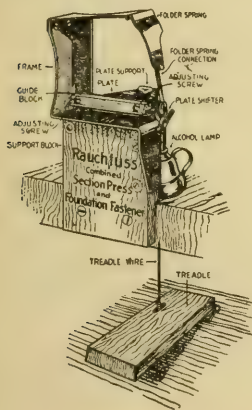
Prices on Nuclei and Full Colonies without Queens

1-frame Nucleus, \$2.00	5-frame Nuclei, \$5.00
2-frame Nuclei, \$3.00	8-frame Colony, \$8.50
3-frame Nuclei, \$4.00	10-frame Colony, \$10.00

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THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER**. Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for $4\frac{1}{4} \times 4\frac{1}{4}$ and also for 4×5 sections.

PRICE \$3.00, COMPLETE WITH LAMP AND TREADLE, DELIVERED POSTPAID ANYWHERE IN THE UNITED STATES. Write for 68-page illustrated catalog of the best Bee-supplies made.

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1424 Market Street Denver, Colorado

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TOLEDO

"Griggs Saves You Freight"

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Beeswax wanted, cash or in trade.

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Gleanings in Bee Culture

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A BOY'S KIND WORD.

I inclose a dollar to keep GLEANINGS coming to my home. I think it is the best paper published. I like to read Our Homes best of all. I think it beats all the newspapers. I am like Mr. Root about the saloons. I wish there were not a saloon in the whole world, because I think the people can do without them. Tell Mr. Root I am with him on voting out the saloons for good. I am nearly twenty-one years old, and I have never tasted a drop of whisky in my life, and am never going to.

Thompsonville, Ill., Nov. 9. FRANK KEELIN.



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Three-banded and
Golden Italian

These queens and bees are reared by the most practical and scientific methods known. Large apiaries to draw from which were established in 1884. Deliveries about May 20. We quote the following prices on delivery up to July 1:

1-frame nucleus	\$1.50
2-frame nucleus	2.50
3-frame nucleus	3.00

QUEENS EXTRA:

Untested queens	1, .75
" "	6, 4.00
" "	12, 7.50
Tested queens	1, 1.00
" "	6, 5.00
" "	12, 9.00
Full colonies	8.00

Special prices on large quantities on application

Our being centrally located means lowest express rates to you in every direction.

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The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

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Good second-hand, fit to refill
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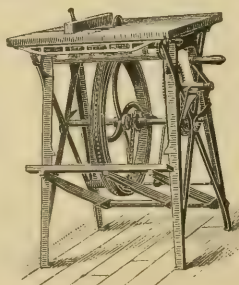
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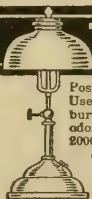
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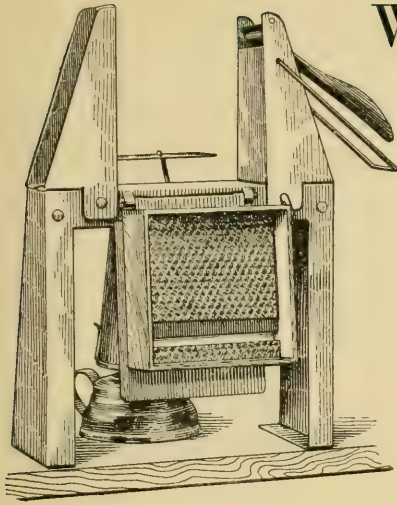
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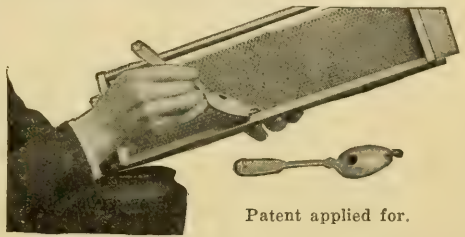
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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager

H. H. ROOT, Managing Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JUNE 1, 1916

No. 11

The High Price of Sugar

SUGAR is already up to $8\frac{1}{2}$ cts., and there is a prospect that it will reach 10. While sugar is expensive, the price of sugar will naturally have a boosting effect on the price of honey.

Winter Losses in New York

LATE reports from New York indicate that the winter losses are more severe there than elsewhere in the country. Our revised reports will stand about as follows: Winter losses in Montana, parts of Canada, and New York. There were scarcely any losses reported elsewhere except as a result of starvation. The high price of sugar and the open winter are responsible for this.

Fruit-bloom in and about Medina

PROSPECTS were never better for a good yield from fruit-bloom during the first week in May this year. Just as the bloom had opened at its height, and when the bees were storing fruit-bloom heavily, a cold rainy spell, as noted elsewhere, set in. In the mean time the bloom disappeared; but, fortunately, the weather maps show that in and around Medina it was much colder than in almost any other part of the United States.

The California Situation

THE *Western Honeybee*, after gathering together a bunch of reports from various parts of the state, thus summarizes the crop conditions:

The orange-honey crop of the citrus sections of the state has been less than was expected, only about two-thirds of an average yield having been harvested. The season was unusually early, having ended before May 1. The new crop is of fine quality, and has already been nearly all picked up by the shippers and local buyers, mainly at 6 cents. A moderate crop of sage is being taken in most localities of the sage belt, but will be shortened by lack of spring rains. Little damage is reported from the sage weevil. Grasshoppers are doing some dam-

age to alfalfa in Imperial Valley, but most of the alfalfa sections will probably harvest a fair crop. Some damage from brush fires has already occurred in the southern counties.

A Long Journey for a Large Piece of Wax

OUR cover for this issue shows an unusually large piece of wax that was shipped clear from California without being broken, with nothing for protection but two thicknesses of burlap. The weight of the cake was 266 pounds.

For shipping beeswax, burlap sacks are better than wooden boxes, for they are lighter, and the wax is more likely to reach its destination in good condition. Usually, however, it is better to use two sacks, one inside the other, so that in case there is a weak spot in one sack the other will furnish the strength. Unless the sacks were in very bad condition it would not be likely that two weak spots would occur at the same place.

The New Edition of the A B C and X Y Z of Bee Culture

WE are working almost night and day in preparing copy for the new edition of the A B C and X Y Z of Bee Culture. A large number of the articles are being entirely rewritten. In addition many new subjects are being added. The A B C and X Y Z is in reality a collection of monograms, each article being complete in itself. Each of the monograms has many cross-references back and forth, so that practically everything known on a subject can be gathered.

During the past three or four years many new methods and ideas have been developed, and these are being carefully incorporated into the old matter. The chapter on European foul brood has been entirely rewritten and the revised copy has been submitted to the best authorities in the United States for correction. Alfalfa and sweet clover have received an entirely new treatment. Extracted Honey and Bottling Honey have been entirely revised.

When the work is completed it will contain between 900 and 1000 pages, and will be sold at \$2.50; but in the meantime all orders up to September 1 will be accepted at \$2.00, because the old edition will be exhausted within a month or six weeks.

Clover Prospects

THE United States Weather Bureau maps show that thruout the clover area of the country there has been a large amount of rainfall. Clover was already in prosperous condition, and recent rains had given it another big boost. Unless we have a very severe drouth and cold weather during the latter part of May and the first of June a big crop of clover is almost assured. Reports from all over the clover districts confirm the Weather Bureau maps. The question now is, "Are beekeepers ready?" It is a fearful mistake to be only half prepared and then get only half a crop when a whole crop might have been secured by having proper appliances on hand ready for the flow.

Long-range Weather Predictions

UP till very recently, at least, the United States Weather Bureau has given out that it could not make accurate predictions very much beyond 48 hours; but recent developments have taken place, showing that in some cases, at least, the Bureau is able to forecast the weather for a week in advance. In our locality, for example, last Saturday, May 13, the Bureau sent out the report that in northern Ohio there would probably be a week of bad weather—cold and rainy, interspersed with sunshine. The Sunday following was beautiful, weather hot, and it looked as if the prediction were considerably strained. Monday began to show rain-clouds, but it was warm. Then it began to turn colder, and for nearly a week we have had bad weather, just as the Bureau predicted.

Shipments of Bees in Combless Packages and How they can Make the Difference between Profit and Loss

THIS is, apparently, getting to be quite an industry in the United States. Many shipments are constantly arriving from the South to boost colonies in the North below par up to honey-gathering pitch. The thing works out nicely, because the Southern producer, after his crop is secured, can ship to the Northern producer the bees that would otherwise be useless consumers, but which, when sent north, are ready for busi-

ness again. While the Southern-shipped bees may die before the beginning of the Northern harvest, they help immensely in making more brood possible, and of course a large force of young bees of the right age for a crop.

The value of these pound shipments will be better understood, perhaps, when it is remembered that a colony slightly below honey pitch will do but little more than hold its own. A little boost of a pound or two pounds of bees early enough will make all the difference between a good surplus and no surplus. A colony that does no better than hold its own is a dead weight on the business.

Those who have colonies that are below par would do well to consult our advertising columns, and other things being equal, purchase of the nearest man who has combless bees for sale.

Dr. Nelson's Book

WE beg to call attention to the sketch by Doctor Nelson on the development of the bee egg, on page 447 of this issue. Until Doctor Nelson finished his job, we were without any reliable account in the English language of this interesting and important part of the life of the bee, and the accounts published abroad were all old and out of date. The changes which occur in the egg are very intricate, and a whole volume is necessary to describe them. The article to which we would call the reader's attention is only a brief sketch, but it may at least awaken in our readers an interest in this part of the bee's existence which has been to most of us a sealed book.

Our readers may be interested in knowing that, in addition to the commendatory notices of Doctor Nelson's work which have appeared in the beekeeping press, this work has been favorably received by such journals as *The Canadian Entomologist*, *Entomological News*, *The Journal of Economic Entomology*, *Science*, and *The Nation*, on this side of the Atlantic; in England by *Nature*, and *The Entomologist's Monthly Magazine*, and by *Miscellaneous Entomologia* in France.

Bees — How Long Can They Remain in a Chilled Condition and Revive?

ON page 416 of our last issue, Mr. H. F. Bohon reports a rather interesting case of how he discovered that the bees of one of his colonies had starved and dropped down on the bottom-board and lay there in a chilled condition, apparently dead. He picked the queen up and carried her to the

house, and was surprised later on to find she had revived. Thinking that the bees might follow suit he scooped them up and brought them in, and they, too, revived. He fed them sweetened water, and they seemed to be as well as ever.

Bees will remain in a chilled condition for several days, as we have proved by experiment; but we have never had them last longer than ten days, because, apparently, they starved to death while in that condition.

The presumption is, in the case cited by Mr. Bohon, that the bees dropped from the combs from sheer exhaustion resulting from a want of food. A cold spell came on, and they chilled while in that condition. It was a case of what might be called suspended animation. Mr. Bohon happened to come around at the strategic time, and warmed them up and fed them. They would not have survived much longer probably.

Bees suddenly chilled in a zero atmosphere will die, while bees gradually chilled and gradually warmed up will sometimes survive. How low a temperature they will stand we do not know; but we do know that a sudden chilling kills them.

There are some interesting problems in connection with this matter; but from present data at hand it is apparent that Nature has made it possible for bees to be chilled thru and remain in that condition for several days. A warm spell coming on, the bees revive and move on to fresh stores.

Stirring up a Hornet's Nest; Legislation too Drastic

WESLEY FOSTER, in his department in this issue, expresses himself in favor of legislation "prohibiting the shipment of comb honey and extracted honey from an infected apiary." He thinks it is doubtful whether such a law could be enforced, but believes we "shall have it sooner than many of us think." He admits that "it will cause a *furor*, the like of which the hubbub over the net-weight law will be tame."

Right you are, Bro. Wesley. If your program can be carried out you surely will stir up a hornet's nest, or, more exactly, a "*furor*" among your fellow beekeepers. We doubt if such exclusion of honey shipments would be wise. Here is a beeman who has \$2000 invested; and if he cannot ship any honey out of his apiary for a whole year or longer because he is cursed with careless neighbors, he might as well apply the torch to the whole business. Moreover, neither European nor American foul brood is a serious menace to the up-to-date bee-

keeper. He can keep them under control—the European by the introduction of resistant strains, and by dequeening, and the American by shaking. Indeed, there are not a few progressive beekeepers who feel that foul brood is a blessing in disguise, because it eliminates from the neighborhood the careless or irresponsible, leaving only the "survival of the fittest."

In the same way, we doubt the wisdom of legislation that prevents the shipment of combless bees or queens in interstate business. The man it would hit the hardest is the producer, not the queen-breeder, because the latter can produce honey.

A bill that would meet the strenuous opposition of a considerable number of beekeepers could hardly pass any legislature. Our law-makers, if past experience is any criterion, will not pass any act unless it can have the *undivided support* of those in whose interest it is made. Several of the states would have good foul-brood legislation today were it not for the opposition of a very small minority of beekeepers.

There is also danger of "reciprocity legislation" that would virtually work out a boycott, provided one state passes legislation that would be hostile to another. It is a dangerous proposition at best. If the other states should retaliate against Colorado that seeks the market of the country it would be serious business. Colorado must and should have the markets of the world for her honey.

The interests of beekeepers can be adequately safeguarded by a federal law requiring that all shipments of combless bees and queens by freight, express, or mail be accompanied by a certificate of inspection, or a sworn statement to the effect that the honey in the food has been boiled to conform to the requirements of the Postoffice Department. Such regulations, so far as queen bees are concerned, are already in force.

Wax Production a Specialty, Not a Side Line

IN countries where honey must be shipped long distances to a market so that the net price which the beekeeper receives is therefore low, there has been much speculation regarding plans for turning such honey into wax. When we received a request for a special number on wax production we hoped that we might be able to get reports from beekeepers who were actually doing this very thing, making a specialty and not a side line of wax. We are not able to present as much information on this particular part of the subject as we had hoped.

In this connection there is a very interesting chapter on this subject in a bulletin by Dr. E. F. Phillips, No. 75, Part 5, of the Bureau of Entomology, entitled "A Brief Survey of Hawaiian Beekeeping." We quote here in full what is given in regard to wax production.

The price of honey fluctuates relatively much more than that of beeswax. On account of the fact that Hawaiian honey has been selling for a low price, and also because of the peculiar character of most of the honey, the beekeepers of the islands are desirous of converting their honey into wax, if it can be done, even at no great profit. The long shipment necessary to get their honey to market means more or less loss by leakage and heavy freight. Wax does not lose anything in transit, and naturally, also, wax weighs much less than an amount of honey of equal money value, and the freight would be very much reduced.

When the author arrived on the islands one of the first questions asked him was how to bring about a production of more wax and less or even practically no honey. After getting the available data, which were freely given, a method was suggested which promises to give some results, if we may judge by results obtained in some experiments conducted in the short time which could be spent in Hawaii. Before outlining this proposed method it will be well to review the basis for the recommendations.

It is a well-known fact among beekeepers that at the time a swarm is hived the activity of the inmates of the new home is at its height. The bees not only collect nectar with great vigor, but, there being no wax in the hive under natural conditions, the wax-secreters become very active, and in a marvelously short time the hive is supplied with combs. It is also true, of course, that wax is secreted at any time during the active season when it is necessary that more combs be built to accommodate brood or stores, provided, of course, there is room. If a comb is removed from the center of the brood-chamber or from the super, it is replaced as needed, but, as a rule, not so rapidly. The rapidity of the honey-flow influences this wax secretion greatly.

The amount of honey consumed in the secretion of a pound of wax is a much-debated question among students of bees, the various estimates ranging all the way from 2 to 20 pounds. There seems to be little hope at present of arriving at anything definite on this question, and the author is strongly inclined to the belief that the reason for this great variation in estimates is due to the fact that the same amount of honey is not always needed to bring about a desired result. It would be bootless, therefore, to pay any attention to this phase of the question in trying to get a method of wax production. Sylviac, in a series of articles in *L'Apiculteur* for 1901, offers evidence that the amount of honey consumed in se-

creting a pound of wax is least following swarming, and this quite coincides with the fact that wax-building is most rapid at that time.

In dealing with wax secretion on a commercial basis, data must be drawn from the receipts per colony under different methods of management. The actual consumption of honey becomes of minor importance. It was learned that the average annual return per colony, after deducting freight charges, leakage, and other expenses incurred after the honey leaves the apiary, would not exceed \$2.50. The hives are on an average two stories high during the entire year, and, during the height of the honey-flow, are often higher. All figuring was done on a basis of two-story colonies. The wax in such a hive weighs over 6 pounds, averaging in value \$1.80, Hawaiian wax being of the finest quality.

As additional data, it was learned that it is possible to increase the number of colonies very rapidly. In one remarkable case reported, 20 colonies were increased to 420 in eight months. This fact shows that a colony of bees can build up very rapidly under the conditions existing on the islands. It must also be remembered that in cane sections there is practically no stopping of the honey-flow.

In view of all these facts it was obvious that, if the wax be taken from each colony, it will form a good beginning in the annual return from a colony. If, then, the colony is in as good shape in a year's time as it was when the wax was removed, there will be honey enough stored to make the annual money return higher than if the colony had been run for honey alone.

The method recommended is to shake the colony on to starters of foundation. The brood is placed over another colony to develop so that it may not be lost; the honey is to be extracted. By dividing the apiary into two parts, one half may be shaken and the brood piled on the other half. These in turn may be shaken in three weeks or more, and their brood added to the colonies shaken at first. This manipulation is identical with the shaking in treating for bee disease. Similar methods are often employed in honey-producing to prevent swarming and to cause bees to work in the supers. In the present instance, however, there is an entirely different reason for the practice.

In the trial made with a view to wax production, a surprising showing was made, and it seemed obvious that the operation could be repeated in not more than three months' time, and probably less. If this be true, then there will be removed \$1.80 worth of wax or more at each shaking, which means a considerable gain.

No positive statements of results can be made until the method has stood trial for a time. If this plan serves the purpose in Hawaii, it will also be valuable in other regions where there is a heavy honey-flow for a long time.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



CHARLES E. KINZIE gives, page 401, a kink worth noticing. He keeps always in the first story of extracting-combs combs partly filled with honey in the center. If a simple thing like that will prevent the forming of a brood-nest there

thus saving the use of an excluder, it's well worth while.

J. E. JORDAN, you say, p. 413, you graft larvæ 24 hours old, and then say, "Cells should hatch 12 days after grafting." Are you not going by traditions rather than your own observations? With best conditions for queen-rearing should there be as long a time as 16 days from the laying of the egg to the emergence of the queen? [See reply to another straw on this page.—Ed.]

THAT illustration, p. 376, showing that it has not yet "all been done" in the way of improved machinery, applies also to bee-keeping. Advance has been made that seemed impossible 25 years ago; some things have happened that are hard to believe even now, and the next 25 years may show even greater advance. Young fellow, keep your eyes open. Who knows but you may be the one to stumble upon something valuable?

ARTHUR C. MILLER, p. 366, says bees sometimes put honey in a cell that contains an egg. That's a new one. I never saw anything of the kind, so that proves he's wrong. But my testimony is like that brought in a case where three witnesses swore to seeing a man commit a crime, and he brought six witnesses to swear they *did not* see him do it. Anyway, I'd like to know if it's a common practice, and just how we can prove it on 'em.

J. E. CRANE says, p. 359, that removing brood is much more effective when first preparations are made for swarming, and the longer it goes the harder to stop them, until sometimes they'll swarm with all their brood taken away. Sounds strange, but it's true. Once I kept thwarting and thwarting a colony by taking away brood, but not enough at first, and finally it swarmed, leaving in the hive only foundation with just one egg, and that in a queen-cell.

SEVERAL of the interesting plans for prevention of swarming given by R. F. Holtermann, p. 404, have as a chief factor an old plan that every now and then bobs up as something new. It was given years ago by G. W. Demaree, Christiansburg, Ky. (I

wonder if he's still alive), and is this: Put all the brood in a second story over an excluder, leaving the queen below with drawn combs or foundation. That's all, I think that Mr. Demaree gave but it's considered better to leave one brood below. Unfortunately it cannot be worked with section honey.

H. H. ROOT, I'm glad your sharp eyes are searching out things new and old in the hive. That starting queen-cells from drone-cells, apparently with drone brood in them, with plenty of young worker larvæ present, I would have supposed impossible. I wonder if you could have it repeated, and then let the cells go on to a finish and find out whether or not the drone larvæ were exchanged for worker larvæ.

That colony chose drone-cells rather than to use worker larvæ away from the edge, yet not two hours before reading your article I saw in a normal colony a cell cup built right in the center of the comb, apparently upon the sealed surface of worker brood. Perhaps it was because of continuously cold weather, so the edges were too cool. But why build cell cups at all at such a time?

Isn't there something a bit askew with your figures where you gave larvæ, and say "From six to eight days from the time the bees took hold of the work the cells are capped over?" I've known cells sealed in less than five days after the larva left the egg, but does it ever happen in more than five days?

[Mr. Mell Pritchard has reared towards 20 thousand queens, and is a very close observer besides. I have just shown him my figures on page 403, and your comment. He says that it takes 15 to 17 days from the time the egg is laid for the queen fully to develop and emerge from the cell. Dividing up the shorter period, 15 days, he gives 3 days for the egg to hatch; 6 days for the bees to feed the larva, and 6 days for the cell to remain sealed. If the weather is unfavorable, so that 17 days are required, the periods are lengthened. According to Mr. Pritchard, therefore, it is 5 days after the larva is grafted before it is sealed, since the average larva is about 24 hours old when grafted. Apparently, therefore, the truth lies between your statement and mine—tho I'll have to admit that you are nearer to it than I. However, this does not surprise me, for you have been keeping bees toward 75 years and you ought to know better.—H. H. Root.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Locust came, with all its inviting sweetness, in late April, and white clover so early in May that they lapped. Right now (mid-May) the honey prospects are very bright, tho of course city backlotter always remember their limited pasturage and keep their expectations modest.

* * *

Prof. Baldwin, it was long before you came into the GLEANINGS family that I wrote my protest against your advocacy of the separate-shelf policy. Now I do most heartily join my welcome to the others, and hope you will make yourself at home on any shelf whatsoever in the apiarian library.

* * *

Dr. Miller, I wish you could see me working among the bees this spring, for I do it sitting on a new really-truly hive-seat, apparently thru forever with merely kneeling by the hives. And I admit it is comfy. Along with the other useful things stored away in the yawning boxes on either side I keep a note-book and pencil, and jot down different memoranda as I go—like this.

* * *

Those moldy north-side combs, mentioned May 1, are all cleaned up now and filled with either honey and pollen or honey and brood—all, that is, but one. That one the record of March 24 refers to as "*very moldy*." And on May 14 about two-thirds of it has disappeared, evidently cut out and ground up, for on the bottom-board beneath was a thick deposit of fine, dry, brown powder.

* * *

What Dr. Phillips is reported as saying about the beekeepers of the South Atlantic states, page 259, April 1, reminds me that right here in enlightened Nashville, that calls herself the "Athens of the South," because of her many schools and colleges, a young lady who was recently told that we kept bees mentioned with considerable interest the necessity(!) of informing the bees of the death of any member of the family. Amazed, but certain that she must be playing, I replied that as we had no deaths, I was unfamiliar with either the requirements or custom or etiquette of the occasion in its relation to the beeyard. Whereupon she solemnly assured me of the genuine necessity of this procedure!

* * *

When I quoted, page 263, April 1, from the letter of Mr. O. J. Jones, giving his method of clipping queens, I liked the way

it read, but had not yet tried it. Now that I have tried it, I like it still better, for it works beautifully—more easily, for me, than the more orthodox method first mentioned, the one I had always used till this spring. Of course if ever a queen should pull away, minus a foot or two, left between my grasping thumb and finger, I should be greatly distressed. But so far no such catastrophe has occurred. Not only did I somehow do it with far less nervousness than previously; but the queens themselves took it with entire matter-of-factness and coolness, two that I watched going right on laying as soon as returned to the frame, tho one of these did act a trifle flighty, perhaps, for she deposited her eggs on top of sealed brood and on the edges of cells and just anywhere at all. I watched a worker take up one of these misplaced eggs with her antennæ; but before she had a chance to carry out her plan, puff! came a little breeze, and the tiny egg blew quite away.

* * *

Claiming Life's Flowers

(Written after a recent illness—hospital, operation, etc.)

Around my quiet days and hours
My joys were blossoming like flowers,
Flowers of love and deep content
And shy, quaint flowers of wonderment.
One by one I drained their sweet,
So close they grew about my feet.

Then sharp across one startled day
A sudden voice from far away
Came shrilling; and at once I knew
Some field where strange, wild flowers grew
Had bloomed, and called, and I must go,
Like bees when clover blossoms blow.

Dread—dread—grew there; but, close beside,
Courage, erect and laughing-eyed,
Pain, and the will to smile at pain,
And love of life thru sun or rain;
While in their midst, with haunting breath,
Blew eager fearlessness of death.

And here my gay bravado shrank;
And yet I drank—aye, deep I drank,
Of every drop my soul could press,
Whether from joy or bitterness.
(I want the flowers by the friendly wall
And the brave wild flowers and the thorns
and all!)

Today I watch my bees take flight,
Unafraid across the light,
And pray my heart may never quail
In its quest for something akin to the Grail—
A glory in life and the grace divine
To drain each drop like holy wine.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



It is not generally known that there are two varieties of wild buckwheat, one of which blooms several weeks in advance of the other.

Bro. Baldwin, I greet you as a department editor. Were it my privilege to assign you a task I would give you the problem of introducing a bee into your state that would fly more than $1\frac{1}{4}$ miles for nectar.

And now comes Allan Latham openly confessing that the much-famed "let-alone plan," of which he is the originator, has failed. Foul brood is given as the cause of failure, which I think would make it a shaky plan in many parts of this land. We must admire Mr. Latham's thought in working out the plan, if nothing more, for he really has made many of us think new thoughts.

Every season for the past twelve years we have been handicapped by fogs during April and May. We have long hoped that a time might come when these conditions would not prevail. This year we were spared the fogs, with the result that the moisture escaped more rapidly than ever. I have been guilty of condemning the weather in past years; but from this time on I shall try to be satisfied with it as it comes.

I have been watching closely the work of bees on the orange to prove the idea (my idea) that they gather pollen from the navel orange. Well, I give up; there seems to be none there. Mediterranean sweets, St. Michael's, Valencia's, and the common unbudded seedlings, have all yielded pollen under my eyes; but the navel, none. So, in the future, when the orange-grower asks me how many bees would be necessary to pollinize the navel groves of Redlands district, which comprises about 10,000 acres, I shall be compelled to say that one colony will be sufficient.

When I read the article of George H. Rea on black brood and his treatment of it I thought of my mother who, years ago, in administering to my ailments with some medicine to which I raised objections, would say, "Well, if the remedy is worse than the disease you will have to get along awhile." Mr. Rea's remedy is surely vigorous treat-

ment, and I doubt if it is altogether necessary. *Melting* up all infected brood-combs, to my notion, would be sufficient. Mr. Rea says, "Combs containing diseased brood, if bad, are burned." There is where I disagree most emphatically. Why burn any thing of value about the apiary?

I am a friend of the excluder, believing it to be a necessary appliance; but this season, for the first time, I believe they have been a detriment to my honey crop. It was not exactly the fault of the excluders either—more the fault of myself in getting in a hurry to confine the queens to the brood-chamber, when the immense flow of nectar and the small force of bees so early in the season left no room for brood-rearing. The force of bees, as I have said, was too small to operate in all parts of the hive at the same time. If I had left the excluders off I feel I should have had more brood early, consequently more bees now for the harvest at this date, as the queens could have forced a retreat somewhere. This season, to be sure, is a very great exception, and the same condition may not happen again in fifty years.

There is an old adage that "one swallow does not make a summer." Neither does one rainstorm or one wet spell make a honey crop. Late in January our state was flooded, the hills were soaked—indeed, the ground was so thoroly soaked that landslides were frequent, even on the foothills where such things were rare. Beekeepers were jubilant, enthusiastic, and satisfied; but, alas! the rain ceased abruptly, the sun came forth in all its brilliancy, and the moisture began to go rapidly. Today, May 6, I read that $\frac{1}{4}$ inch of rain has just fallen in San Francisco, the first for 44 days, leaving the record for April the driest since 1857. There is a great lack of moisture all over the state, and honey-plants are the sufferers. My scale colony is making about two pounds net per day in the middle of the button-sage bloom, when I had every reason to believe that I might now be getting ten pounds at this period. Everything is all out of season from the very beginning. Orange bloom was over by the time it usually begins to bloom well. The sage followed in about the same unseasonable time, and other things in the same roll, with no moisture to help secrete nectar. So near and yet so far! so good and yet so poor!

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



I have received a few pound packages of bees from the South by way of experiment. Shipment arrived in good order except one package that was starving. The bees had reached the "quiver" stage. Cages were soiled some-

what; and when the bees had their first flight, visible marks of their confinement were in evidence. Evidently, "dysentery" (?) can be caused without any cold weather, and by so short a confinement as five or six days. I had no trouble whatever in getting bees on to the combs in the hive; and after four days I found all queens laying nicely. While I could have given them brood to help them along, not a single comb did they get. They were supplied with combs and honey, and it will be a case of each one "paddling his own canoe." That is the only way to give a fair test to see what they will do in the way of building up and producing a possible surplus. As to the latter, while the bees are in good condition I would be willing to dispose of any possible surplus from them this season at a very moderate figure indeed.

SUGAR \$9.00 A HUNDRED.

The spring of 1916 will be remembered by many Ontario beekeepers as one of the most backward in years. To make matters worse, during the exceptionally warm January preceeding, heavy brood-rearing was carried on by the bees, with the result that consumption of stores was abnormally heavy. With bees all in packing-cases, and with a knowledge that most of them are strong, but on the verge of starvation, continuously cool and wet weather right up to date, May 15, has a tendency to get one worrying a bit unless he is entirely proof against such folly. Wild-plum blossoms are not yet open as I write this, for May 15 is late, even for Ontario. Bees at my north yard had a late light flow of honey last fall from aster, etc., and as a result many old bees died off earlier, leaving colonies in good condition, but not so populous as here in York Co. The result is that the north bees are in fine order, and few are short of stores, while here in York Co., while bees are in fair shape as a rule, yet in my four yards I doubt if the bees have two pounds of old honey per colony. It is needless to say we are hoping that conditions will soon get better so that bees will get something from dandelion, fruit-bloom, etc., to tide

them over till clover. Otherwise, buying sugar at near \$9.00 a hundred is the alternative confronting us. But clover looks immense after all the rain we have had; and so, no doubt, all will try to tide their bees over, even if it does mean a heavy expense for the time being.

MORE THAN ONE QUEEN IN A HIVE THRU THE WINTER.

From an experience we have just had, I am led to believe that possibly more than one queen is sometimes in a hive at the same time when the apiarist is not aware of the circumstance. In April, 1915, we found a clipped queen and another one unclipped, both on the same comb of brood. The young queen appeared to be fertilized, and I thought little of the occurrence, expecting that the old queen would soon disappear. Later on in May again, the two queens were still there, and, if I remember correctly, we saw them again in June. After that, being very busy, the colony was not examined again. They were prepared for winter with the other colonies; and as I noticed brood in the hive at the last examination I naturally presumed that the young queen was now alone on duty.

This spring I noticed this colony was not building up any too well; and, altho the day was not any too warm, I opened the hive, and—imagine my surprise to see the old clipped queen still on duty! Altho not very strong, yet some drones were being reared, and I concluded that the young queen, noticed over a year ago, and later as well, had not been fertilized and had been disposed of. I sent for a queen at once, and a few days ago my son and I went to hunt out the old clipped queen. As they are very gentle Italians she was soon found and disposed of. I was about to close the hive, when, on second thought, I decided to take another look for fear the young queen might still be there. On the very next comb, sure enough, there was the other queen, apparently a fine one in so far as looks go, and in the act of depositing an egg in a cell. No question as to any mistake in the matter whatever; and will some one please explain why these two queens were together a whole year? As the two together were not doing as good work as one queen should do, we broke up the dual monarchy by pinching the head of the young queen, even if she was all right in so far as appearances go.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



Almost everything in the arid regions needs special methods adapted to our special conditions. As an example, take the water treatment for foul brood. Some let the hives down very slowly into the water, or, rather, push them down, and, when clear down, put a heavy weight on top to hold them down. Here in the West we have a very easy method. We irrigate the foul brood. Go to the edge of the irrigating-ditch and dig a nice square hole, about six inches or so larger than your hives to be treated; then place your foul colony in the hole with the new hive on top, and a sufficient weight on top of that (sit on it if you want to). Dig a little ditch from your irrigating ditch to the hole, and let the water run in slowly and fill the hole. When you get one colony treated, take the old hive and comb out and dip out the water and treat another in the same way. One disadvantage of the water treatment is that the old hives and combs do not burn very readily; but suppose you have just one hive to treat—you can dig the hole a little deeper; and when you get the bees all out just cover the whole thing with two feet of earth.

Transferring box hives can be done by the water method; but the loss of brood will be considerable unless the box hive has cast a swarm one week previous to the treatment, in which case nothing of value need be lost by the treatment with water. as the honey is not hurt for bee-feed, and the wax is not injured. The hive, being only a box, is worth nothing anyway.

CONTROL OF BEE DISEASES BY RESTRICTING SHIPMENTS OF BEES AND QUEENS.

The development of beekeeping to its highest possibilities cannot be accomplished without the shipping of bees and queens from one point to another; neither can it be accomplished without certain restrictions. American foul brood cannot be transmitted, it is believed, by shipping bees and queens in combless and honeyless packages. European foul brood has been pretty certainly carried by sending queens thru the mails. American foul brood is easily transmitted in extracted and comb honey shipments. What are we to do in these contingencies?

Here in Colorado it has been recommended to the beekeepers that they refrain from purchasing bees and queens from outside the state. Inasmuch as we have European foul brood that may have been introduced by receiving queens from an infected dis-

trict in another state it has been decided to caution beekeepers. And we are just as anxious and just as much concerned that no bees or queens shall be shipped out of this infected district. We believe we should take our own medicine, and are taking more of it than we ask any one else to take. Therefore beekeepers of Colorado are cautioned against buying bees and queens outside the state, and shipments of bees and queens are prohibited from the district infected with European foul brood in so far as our law will permit.

Shipments of infected honey are not allowed to go into general trade. They are directed to cracker-factories. However, beekeepers are too careless and indifferent in this regard, and we must mend our ways. An act prohibiting the shipment of comb or extracted honey from an infected apiary would meet with the writer's approval. At the present time it would be doubtful if it could be enforced; but we shall come to it sooner than many of us think. It would cause a *furor*, the like of which the hubbub over the net-weight law would be tame. In three years after such a restriction is passed the country would be freer of foul brood.

If the beekeepers would have notice served upon them that in two years all diseased apiaries would be prohibited from shipping honey until such apiaries are free from disease, it would make us hustle.

The editor of GLEANINGS recently spoke of too strict legislation in some states, and there is no doubt that some of the laws are more detrimental than helpful to beekeeping interests. I should like to see full and free discussion of the points over which there is dispute. The editor mentioned that if shipments of bees and queens were prohibited from one state to another the beekeepers would be handicapped in getting disease-resistant stock. But it is probably true that there is not a state but that contains beekeepers who have vigorous Italian stock that could be secured without going beyond the state lines for it.

Personally I do not believe that there is such a thing as stock becoming immune to the disease by long contact with it. There is no immunity without strong vigorous colonies headed by young prolific queens. And I have observed no advantages of the Italians over hybrids, strength and vigor considered.

A vigorous black colony so cross that no drifting bees are allowed to enter will furnish good immunity. [See Editorial.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



AVOIDING BEING STUNG.

"Can you tell us how to avoid being stung? I do not mind an occasional sting, but my bees seem persistent in stinging me, so that some days I get from 20 to 50 or more stings."

Quite a little depends upon the individual in regard to this. If a man works at the bees with quick or jerky motions, when lifting hives, frames, or sections, he is apt to jar the bees more or less, and even kill many of them. A man having 20 colonies desired to come and work with me for a day or two to learn something more about the proper way of handling bees; so I told him to open a colony of my most peaceable bees just as he did his own, and if he lacked in any part I would show him a better way. The first thing he did was to throw (or, rather, drop) the shade-board on the ground in such a way that it fell over against the body of the hive with a heavy jar. I called a halt, telling him that in all the manipulations about a colony of bees everything must be done with a view to making as little disturbance as possible. He then commenced to pry the frames apart, and did it about as a man would pry up sticks of timber were they frozen down. I was about to call a halt again when he grabbed one of the loosened frames and brought it out with a trembling, jerking motion, causing the end-bars to strike the hive, and the one next to it, so that from 50 to 100 bees were crippled for life. In a short time he was getting out of the beeyard with more stings than I would get in two months.

A man must learn that much depends upon the flow of nectar and the weather. A cloudy or cool rainy day, when all the bees are kept at home, is the worst time to open hives unless it is a day when the bees have been robbing, or a cool day following a sudden stoppage of the nectar flow. If it is really necessary to handle bees at such times, the thoughtful apiarist will first make sure that his smoker is in good order, and is ready to give off a good volume of smoke. He will blow in a little of it at the entrance, and then pry up the cover a little very gently. As he does so he will send a stream of smoke into the crack made by the screw-driver or other tool he uses. This drives down the guards, and then the crack is made a little wider, and more smoke is driven in, when the cover is removed. If the bees appear nervous, and stick their heads

up all along the spaces between the top-bars of the frames, standing high on their legs, and follow every motion with a turn of their heads, they should be given a few more light whiffs of smoke until they are subdued and show it by keeping mostly down below the top-bars among the combs. Using the hive-tool, the frames should be loosened very gently, the smoker being held in the other hand. If the bees stick their heads up at any time ready to show fight, they must be driven back again, and then the first frame very gently removed, care being taken that no bees are rolled over and bruised by the frame coming in contact with any part of the hive or other combs with force enough to cripple any of them. After the first frame is out, when working in this way the bees rarely show much fight; but if they do, a few whiffs should be given as they become restless.

In warm weather, with a nectar flow, I rarely blow smoke in at the entrance. Just a little in the crack when removing the cover, and a little smoke on its arrival, is all that is necessary with nine out of ten colonies, if care is used. I do not think that there is a colony in my yard that I could not go out and manipulate without either smoke or veil, and receive no stings, yet I would be obliged to work very slowly and carefully. It often happens that I wish to do just a little work with the bees—see if a queen has been released or if she has begun laying, or if the bees are working in the sections—and I neither light a smoker nor take a veil. I just work slowly and carefully. But the use of a smoker is a great saving of time. So is a veil, as one need not be quite so careful. I do not mean by this that I work roughly or mutilate the bees. I mean simply that I can do faster work.

A man accustomed to bees can go into an apiary where the bees are quite cross, and stay ten or fifteen minutes; and if the hands are free to use in protection, no stings will be received. At the same time a novice might be stung almost immediately, and a number of times, if he stayed that long. Pulling down the hat over the eyes, shading the face with the hands and arms, etc., help to disconcert the bees.

If a colony should get unduly stirred up so that a score or two of ugly bees follow about in an angry mood, I carry a wire-cloth "paddle" in my tool-box, and with this a few quick blows will kill the whole lot of them, so that peace is restored.

GENERAL CORRESPONDENCE

CONDITIONS UNDER WHICH WAX PRODUCTION ALONE IS POSSIBLE

BY LESLIE BURR

The beekeepers of the Hawaiian Islands produce but little beeswax. There seem to be two reasons for this. First, they have been contented in the past with producing honey; second, they have no bee diseases, and so have never had to do any wholesale cooking-up of combs, as beekeepers here had to do in many parts of the world. The only wax that is produced is from cappings.

In handling the cappings the Hawaiian beekeepers have adopted the usual method employed in California—that is, they use large solar extractors to melt the cappings, and then later cook the wax in large tanks or vats and run it off into cakes. These extractors are merely glass-covered boxes, bee-tight on top and honey-tight at the bottom. They are divided into two compartments by a screen. This screen is placed midway between the glass and the bottom of the tank, and it is on this screen that the cappings are placed. The honey in the cappings finds a ready passage thru the screen; and the wax, after having been melted by the sun, follows.

MAKING A SPECIALTY OF WAX PRODUCTION.

On the surface, conditions here in the Hawaiian Islands appear to be such that bees could be worked for wax as well as honey. These conditions that make for wax production are: A large portion of the honey produced is of very low quality, and an equally low price is obtained for it. Then there is the matter of transportation. The islands being located near the center of the Pacific Ocean, it is a long journey to any market. Ocean freight rates are by the ton, and the value of the freight makes but little difference in the rate charged. Then, too, wax is worth almost the same price here as on the Coast.

Just what procedure should be followed, or what can be done in the matter of wax production here, I do not now feel qualified to say. I have been here but six months, and during the time of year when the bees have least to do. It may be that the present method of working bees secures all the wax that can be obtained at a profit, yet I doubt it.

CONDITIONS IN THE HAWAIIAN ISLANDS.

Beekeeping everywhere is a matter that has to be worked according to local conditions. The time of year at which the sur-

plus flows occur; the temperature, and the kind of weather; length and nature of flows, and many other matters all have a bearing. While it is safe to say that, as a rule, bees will do like things under like circumstances and conditions, yet there are very few localities where identical circumstances and conditions exist. For example, take Cuba and the Island of Oahu. Both islands are north of the equator, and located at just about the same distance from it, yet the honey seasons are reversed. In Cuba the honey season is during the winter months, while on Oahu the flow is during summer. The temperature of the two islands, I think, is almost identical, month for month, yet the general weather conditions differ greatly. In Cuba the rains come in the summer, while on Oahu the rains are generally during the winter months. So, because a thing can be done in Cuba it does not necessarily follow that it can be done in the Hawaiian Islands, and *vice versa*.

One thing that was a surprise to me here was that, among those interested in bees, at least among those I have met, I have as yet to find the first person who seems to have any interest in increasing the output of beeswax. In fact, none claims to have given the subject a thought.

In Cuba, years ago, wax production was one of the common topics of conversation among honey-producers—at least it was a common topic every time the price of honey went down. Some of the honey-producers used to advocate the working of bees for wax alone, their idea being to locate an apiary in some of the out-of-the-way places, where the territory was exceedingly good (or at least supposed to be of that nature), such as some of the locations up in the mountains, or down in the mangrove swamps on the Caribbean coast. The usual plan of management advocated was to use native hives—that is, hollow logs, and then work the bees native fashion by cutting out the surplus honey first from one end of the log and then from the other end. The natives place the log hives in rocks in a horizontal position. The honey, after taking out the wax, was to be fed back to the bees, over and over again, until nothing but wax was left. However, so far as I am aware none of those who advocated such methods of beekeeping ever tried to put their plans

into operation. Such discussions were generally looked upon in the light of pastime. Perhaps some of those who used to discuss wax production to the exclusion of honey may have been serious enough to hope that some person would try the scheme and thereby satisfy curiosity.

The bee is primarily a honey-producing insect, and I don't think that man will ever be able to alter its nature enough to change it into an insect whose principal object in life will be to produce beeswax.

While working bees for wax alone—that is, to the exclusion of honey, may be but a dream; yet working bees in such a manner as to increase the amount of wax obtained, and the profit from the apiary thereby, is, in my opinion, possible in most localities—at least that is my belief. The basis of this belief is that during a flow of honey the bees will produce a certain amount of wax without any appreciable decrease in the amount of honey that is gathered, and that the average beekeeper does not secure all of this wax.

As to methods of securing this wax, the most simple is by proper spacing of the frames in the super, and by the proper uncapping of the combs. By proper spacing I mean wide spacing; that is, eight frames to a ten-frame super. I have visited apiaries of many extensive beekeepers and found the frames in the supers spaced the same as in the brood-nest, and have heard some of these same beekeepers boast as to how thin they could slice off the cappings. They were working their bees so as to get as little wax as possible, and prided themselves on that fact.

In the matter of spacing, my experience has been that just as much honey can be obtained when the combs are spaced wide, and, when uncapping, slice the comb down even with the wood of the frame. This also makes it easier to take out the full frames of honey from the supers; and it is also easier, when uncapping, to slice off a good thick slice of comb than merely to remove the bare cappings.

In this matter of wide spacing, conditions also play a part. With strong colonies the combs can be spaced wider than in weak ones; and during a heavy flow of honey wider spacing can be practiced than when the flow is light. This wide spacing, I also think, holds down swarming in a measure.

In tropical or semi-tropical climates where there are long spells during which time the bees gather merely enough honey on which to live, considerable comb can be obtained by having it built in the brood-nest. Under such conditions combs so built

are clear gain; for if the bees are left to their own devices, nothing is obtained from them.

In the matter of working bees for wax alone, there are certain conditions under which it can be done. I know this to be a fact, because I have done it. I think I have told of the manner in which it was done, in previous articles to GLEANINGS. But as that was some years ago, and I suppose most of the readers have forgotten what I then said, or that I ever wrote anything on the subject, I will risk telling the tale again.

HOW BEES WERE WORKED FOR WAX ALONE.

In Cuba, that is, in most parts of it, the principal honey-flow is during the winter months, the heaviest flow being during December and January. In summer the bees are practically idle; but in early spring and early fall there is a light flow of honey, during which the bees breed like mad, and swarm accordingly. As a rule the honey gathered during these spring and fall flows is of very poor quality, and of little value, even if it were possible to secure it, which is not the case, for the bees have no desire to store this honey in the supers, their sole idea being to turn it into brood. It was during this spring flow that the bees were worked for wax. The process was simple. Care was taken that none of the combs in the brood-nest contained any drone comb; then the queen was confined below with a queen-excluder. In the super the combs were interspaced with empty frames, care being taken to see that those combs in the super contained no drone comb. Under those conditions the bees were possessed with the idea of building drone comb. As the queen was below she could not lay in this new drone comb when built; and as the bees desired drone brood the comb was held open for the queen to lay in, no honey being stored in it. After the hives had once been prepared in the manner indicated, the production of wax was a simple matter. All that had to be done was to make the rounds of the supers twice a week and cut out this newly built drone comb. When the early flow came on in the fall, all combs needed for the winter flow were drawn out.

By the foregoing procedure considerable wax was obtained when, under ordinary practice, nothing could have been obtained from the bees but increase; and as increase was not desired, the wax obtained was just so much clear profit.

In conclusion I wish to say that I think I have made it clear that I do not believe that bees can be worked for wax alone—that is, to the exclusion of honey, under any

other conditions than those described as existing in Cuba.

As to producing wax by having comb built in the brood-nest: I was able to do that two seasons out of three in San Diego, California—that is, in the city of San Diego. The same conditions did not exist outside of the city.

In the northern states I doubt whether conditions will allow of the increased production of wax by any other means than wide spacing—at least I believe such to be the fact in most locations and under normal conditions.

Honolulu, H. I.

THE PRODUCTION OF WAX IN CUBA

BY FRANK REIMAN

The production of wax in Cuba is of almost equal importance to that of honey, as the statistics of exportation show. By the old system of keeping bees in hollow logs, one pound of wax was produced for every gallon of honey, which was from two to five gallons according to the year. By my system I secure about five pounds of wax and ten gallons of honey a year. The past year was the greatest failure I ever had. My honey crop was only 75 barrels and 2000 pounds of wax. The spring crop was very poor, because no rain fell until the last of April. In July the rains, which were scant, stopped entirely, and we are now over seven months with less than half an inch of rainfall all told. This is the driest spell I ever saw in any country. The cold was also so excessive that neither honey nor wax was produced. From the middle of October until Feb. 1 the thermometer stood at about 50 degrees each morning, rising to about 60 or 65 by noon. Some mornings it was as low as 40, with cold winds and clouds all day.

I am confident that the people of the United States believe that it is very warm in Cuba all the year round. This is a mistake. I have seen the thermometer at 34 in the morning, without rising above 40 all day. I have also seen the winters so warm that the bees swarmed February 10.

I use a long ten-frame hive which has frames 20½ inches long by 6 deep. I use neither foundation nor wire—ten frames below and nine in the super. My new combs I raise exclusively in the super, for in the super the bees work to the bottom-bars. In the bottom of the hive they leave half an inch of space between the comb and the bottom-bar. I use five empty combs with four frames alternately in the super. In a week they will fill the four empty frames. If they are drone comb they are worth five cents each for wax. If they are worker comb they are worth at least ten cents each to use for brood. When not enough honey comes in to extract I look at all the hives each week, make new swarms

with the good combs, and cut out all the drone comb except in special hives for breeding, and all old comb without honey.

In extracting, a woman cuts all the drone comb and old combs, which usually makes from 25 to 50 pounds with the cappings in extracting one beeyard.

I have never tried feeding back honey to make wax; but I am sure it will not pay here, as enough honey usually comes in all the year—enough for the bees to make some wax. I have fed back to finish sections of comb honey, and find that the bees made only about one section a day, whereas they naturally would make at least five with honey coming in from the fields; and, besides, the honey was darker. In the spring and summer months the wax must be made up every day, if possible, or it will ferment and spoil on account of the drone brood. The moths will also eat the combs all the year round. Dogs will also eat the combs if the combs contain honey or brood. To learn this cost me several dollars. I left a box of comb out over night, and in the morning it was cleaned up. The neighbors told me the dogs did it.

My mode of rendering wax is simpler and less expensive than any other method I know of. The outfit consists of six empty five-gallon gasoline-cans, a peanut-sack, a barrel cut in two, and a pair of stout sticks securely tied together with a stout cord. I place the cans three in a row. Over them I run bars about six inches from the ground so I can heat six cans with one fire. I fill the cans one-third full of water; and when the water boils I keep putting in combs until the can is two-thirds full. When the combs are melted, and begin to foam, I pour the contents of the can into the sack which is suspended over the half-barrel. I begin pressing the sack between the two sticks, working the two sticks up and down until no more wax comes out. I then throw the refuse away. When there are two persons you can use eight cans and make from 200 to 500 pounds of wax a day according to the quality of the combs.

When there is much wax to make, it is advisable that there be two to work at rendering, as they can work to better advantage, and press the wax cleaner. The second person twists the bag while the first holds it between the two sticks. Combs or cappings with honey should be first melted with a little water to get the honey out over a slow fire, and should not be heated until the wax boils, as it will spoil the honey, and the wax will be harder to render afterward. When the wax is rendered with a quantity of honey in it, it comes out in a mess of granules like shot when cold, and must be melted again.

The cans cost here 15 cents each, and last about three months. A bag lasts long enough to make from 500 to 1000 pounds if it does not get bad treatment by pressing hard enough to tear it. The wax, when melting, should be constantly stirred from the bottom upward, and not pressed down from the top, else it will burn the cans, and the wax will have a burnt flavor. When wooden utensils are used to hold the melted wax they should be soaked with water first so the wax will not stick to the sides. When tin cans are used they should be about two-thirds full, and inclined at an angle after the wax is in the can so it will come out

easily when cold. This trick I learned about ten years ago when I had a can that leaked on one side when I inclined it to stop leaking. In the morning the can let the wax out easily, while I had to work at the others to get the wax out. For the last ten years I have always had about 1500 hives of bees in eight to ten yards. My average crop of wax is about 5000 lbs. a year.

At present the price is 40 cts. per gallon for honey and 24 cts. a pound for wax. Russia is our chief buyer of wax, which market is at present shut off by the war. The honey moves as usual, being shipped to Germany via Holland.

Cauto el Paso, Cuba.

[Different parties who make a business of buying up slumgum and rendering it into wax report that the refuse left when combs are rendered by the hinged-board method yield from five to fifteen per cent of its own weight in wax. In our opinion, for a wax crop of 5000 pounds a year a large-sized powerful press should be used in a can or tank to permit the combs to be under boiling water during the pressing. We do not believe there is any other practical way of getting all the wax. See report by F. A. Hooper, page 458.—Ed.]

GIVING WAX THE MAIN TRACK WHERE THE COST OF GETTING HONEY TO MARKET IS PROHIBITORY

BY W. G. HEWES

In this locality the price to the producer for extracted honey during the past two years has been $3\frac{1}{2}$ cents a pound. Beeswax has brought from 27 to 32 cents or from eight to nine times as much as honey. It seems to me that, under these conditions, it would be wise for the $3\frac{1}{2}$ -cent honey-producer to run his bees for wax and let honey be the incidental instead of wax, as is now the case.

Between my bees and a depot are fifteen miles of awful road. Twelve cases of honey weighing 1600 pounds is a load for two horses. Such a load, when delivered in Yuma, is worth \$50.40. A load of wax of the same weight is worth \$432. In other words, it costs more than $8\frac{1}{2}$ times as much to get a dollar's worth of honey to town as it does to get a dollar's worth of wax. The wax is shipped in sacks, which, so far as I am concerned, cost nothing. It takes 20 per cent of what my honey sells for to pay for the cans and cases. Were that old chestnut true, about its taking twenty pounds of honey to make one pound of wax it would

not pay to make a specialty of wax production, even if it is worth eight times as much as honey. But that is fol-de-rol. During a honey-flow I don't believe a hive having plenty of young bees will consume five pounds of honey to make a pound of wax. But here is another point: If the producers of three-cent honey would so generally turn from honey production to wax production as to make a material reduction in the honey crop, the short supply would cause an advance in price, and probably sell for as much as would a large crop.

Four years ago cotton was selling for 16 cts. a pound, buyers believing the output would be 12,000,000 bales. When the Government came out with its report, saying the output would be 15,000,000 bales, the price dropped so that the large crop sold for several hundred million dollars less than the small one would have done. The cotton-growers would have been better off had they fished more and worked less. Put this old world on half rations, and it treats you well. You can sport around in automo-

biles; but give it a full ration, and your only show for an automobile ride is when the police run you in as a vagrant.

To raise more wax and less honey, begin in the spring by cutting out and melting up everything but perfect brood-combs. Then replace the empty frames; and when they are filled with new comb and honey cut out the combs, drop them into some receptacle like a McIntyre uncapping-box, from which, after being crushed and chopped up with a short spade, most of the honey can drain off into a tank. A capping-melter will get the rest and the wax. I have queen-excluders for all my hives, and would consider

them an essential in wax production, so as not to be bothered by brood, for queens dearly love to lay eggs in new comb.

I shall try this season to see how much wax I can get from my 250 hives; and if the beekeepers of the West Indies and our southern states—Arizona, Imperial Valley, and northern California, would do likewise, I feel sure it would be advantageous to us all.

Yuma, Ariz.

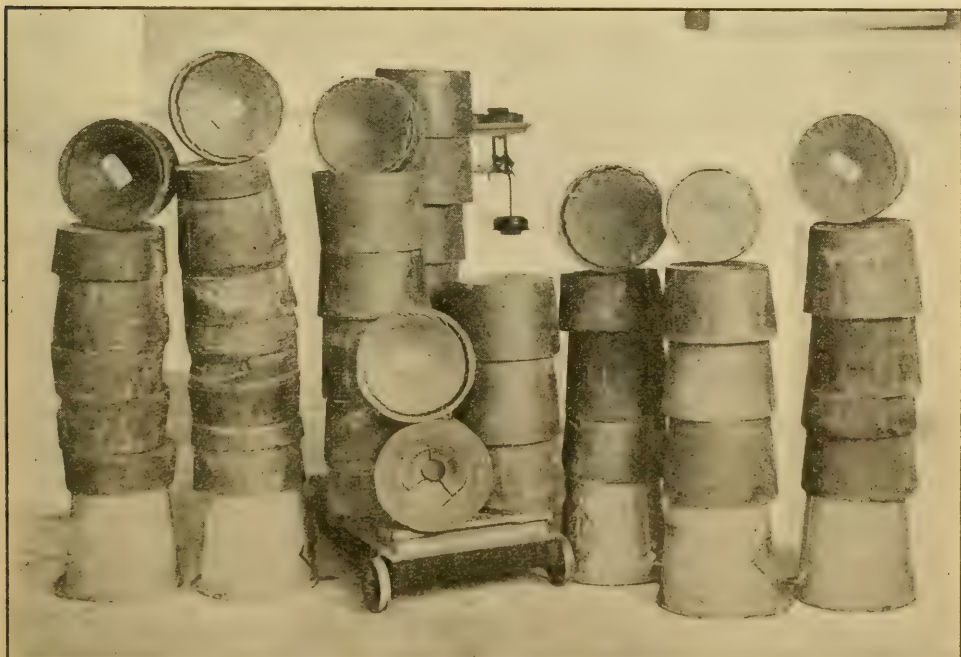
[We hope that our correspondent, after he runs his bees for all they are worth for wax, will make a further report.—Ed.]

USE SOFT WATER TO FACILITATE WAX-RENDERING

BY W. B. BRAY

In the method I use in rendering the wax from old combs I am able, in the one operation, to get the wax into large clean blocks ready for market. I melt the combs in a large copper boiler and press them in a Hatch press, which I consider is the most useful press for any beekeeper. I cut out an extra melting operation by catching the wax and water from the press in a benzine-tin *which has a small tap soldered in at the bottom*. When this tin is full I keep on

drawing the water off at the tap, and return it to the boiler. By using the same water all the time, I save firing, do quicker work, and the wax remains hot in the tin. When it is nearly full I strain the wax and some water into a clean tin, which is then well covered up so that the wax will cool very slowly. A couple of days after, I can take the block of wax out and scrape all the dirt off the bottom. Even this dirt contains a small quantity of wax, so I put it in the



Wax rendered by members of the apicultural class at the Massachusetts Agricultural College. Different processes are demonstrated by the students under the direction of Dr. Burton N. Gates.

solar extractor, which makes a thoro job of removing it.

A most important point in all wax-melting operations is to use soft water. I am sure that hard water accounts for the loss of tons of wax in a year.

Speaking of tons reminds me that our

ton is 2240 lbs. We call the American ton, 2000 lbs., "short ton." Your five-gallon can holds 60 lbs. of honey, so the gallon of honey must weigh 12 lbs. Our gallon holds $14\frac{1}{4}$ lbs. of honey—a matter of "locality" again.

Wainiu, New Zealand.

RENDERING CAPPINGS INTO MARKETABLE WAX

BY J. L. BYER.

Some years ago while buying honey in Ontario a beekeeper, after showing me his crop of 4000 pounds of honey, and stating the price he wanted for it, incidentally remarked that, "in taking off that lot of honey, not a handful of cappings were removed." That was a "record" all right, and I promptly told him so, adding at the same time some remarks that I fear were hardly complimentary to such a method of harvesting a crop of clover honey. The honey was very white, but, needless to say, light in body, and lacked that characteristic flavor that is obtained here in Ontario, at least, only by allowing the bees to cure the honey on the hive—a process that calls for the most of the honey to be sealed over before being extracted.

The man referred to represents the extreme view on the part of a very few, fortunately, who produce extracted honey. While he had not a handful of wax from 4000 pounds of honey, it is natural to ask how much wax can be secured from a given amount of honey. Of course the answer all depends upon certain factors, such as to whether we cut deep or shallow when uncapping, and also to the proportion of the combs capped over when the honey is extracted. Last year we had a good crop of honey at our north yard; and as we were busy during the honey-flow, and also had a full complement of extracting-supers at that yard, all honey was left on the hives till the close of the white-honey flow. There was no buckwheat to make us hasten operations. In York Co. the crop was very light—about 25 pounds to the colony, of white honey,

and we had a second flow from buckwheat of about the same amount. Of course at the north yard we had a much larger amount of cappings than here at home, as up there the supers were filled, while down here in York Co. very few supers were filled, and the majority of the combs had quite a lot of unsealed honey in when extracting was done. About two-thirds of our crop of 36,000 pounds of honey was produced at the north yard; and as the cappings were all melted together here at home, I cannot give the exact proportion from any one yard as compared with another. However, the general average is about the same as for other years; and after weighing up the wax from the cappings I find that we get about one pound of wax to every 100 pounds of honey extracted.

The picture shows the wax just as it came from the press, and that pile represents 365 pounds of very nice wax, altho the cakes were cooled too rapidly, as can



365 lbs. of wax obtained from cappings from 36,000 lbs. of honey.

be seen by the checks in some of them. On this basis we must have had much more than one pound of wax to every hundred of honey at the north yard, as at a rough guess I should say that not more than half of the honey here at home was sealed over, while at the north yard-nearly all combs were about solid. Unfortunately we have never had a full crop in both counties at the same time; and as cappings are always rendered up in winter, and all put together, results have always been about the same. At any rate it looks as tho one should expect a pound of wax to 100 of honey, provided the crop is average in quantity. How does this accord with the experience of other extracted-honey producers?

We are often asked how we dispose of the cappings. After trying a capping-melter a few years ago with indifferent results at best, we are again back to the old-style methods we have used for some time. I am told that the new-style melters are all right in that they do not color or "cook" the honey; but I have not tried them, so cannot speak from experience. One thing objectionable with all of them is that it means extra heat in the building at a time of the year when we need nothing extra along that line. We use the old-style divisible capping-cans, and like to have two at each yard. One will about handle the cappings for a single day's work, and with two cans the cappings can be left to drain much longer than when only one is used. The only objection that we have found is that they are too deep to allow as much drainage as a longer and shallower uncapping-device. On the other hand, they are bee-tight, can be easily taken from one place to another if

necessary, and they also take up little room. In crowded buildings this latter point is a strong one in their favor. After draining the cappings as long as we can leave them in the cans, they are dumped into empty barrels till we have time later in the fall to attend to them.

Formerly we put the cappings all thru the capping-melter in the winter, removing all the honey, and then the wax and all refuse with it was melted up and run thru the press, and then into the flaring tins we use for the purpose. But that was too slow a job, so we now put a pail of water in a large kettle outdoors, and then fill up with the cappings. The mass is heated till all is thoroly dissolved, but not boiling, and then removed from the fire and allowed to cool. Of course the honey with the small amount of water will all be at the bottom, and wax can be lifted off the top. When all the cappings are treated like this, then the wax in the rough, as it will be, is broken up and remelted in a warm room. We have a stove in our furnace-room and do the work there. The honey and water taken from the cappings is, of course, unfit for market, but it will not sour or granulate, and in the spring it makes first-class food for the bees if any feeding is necessary. Before feeding we add some more water and then bring all to a sharp boil to avoid any chance of disease.

This method of handling the cappings is, no doubt, out of date in some ways; but until we decide to use a melter while extracting, and thus dispose of the cappings at once, I expect to continue as at present, as it is about the quickest way we have found of solving the problem.

Markham, Ont.

RENDERING FOUL-BROOD COMBS INTO WAX

BY EARL F. TOWNSEND

In talking with a beekeeper regarding the control of American foul brood he informed me that, after shaking the bees, he burned the remaining brood-frames and combs. This seemed to me rather wasteful, as I have recently sold a quantity of prime wax rendered from foul-brood combs to a large manufacturing concern at 45 cts. per lb. Had I followed his method these combs would have been an entire loss. It occurred to me that some of the newer beekeepers might be interested in our method of rendering such combs.

We do not shake for American foul brood at all, never having had very flattering success with the plan (altho possibly this may have been my fault); but when we

come across an affected colony during our regular inspection we make a note of it; and as we usually find them before they are very weak, we contract the entrance and run them for all they are worth during the honey-flow, allowing what bees remain in the fall to starve. During the winter we render the combs.

After putting the wax thru a Hatch press, we again melt the refuse with a small amount of water, and put it thru the press again, this time placing inside the burlap cloth a piece of coarse unbleached cotton cloth which catches any small particles of dirt which may have come thru the burlap at the first pressing. We pour the wax into a metal dish having flaring sides, larger at

the top than bottom, and allow it to stand until the wax is solid, when contraction will allow it to slip out smoothly in beautiful cakes.

When cutting combs out of the frames we place frames back in the hive-bodies until wax-rendering is finished, when we have a "boiling up" as follows:

In an ordinary wash-boiler about half full of water we place half a can of lye, and in this boil as many frames as can be placed upright therein. As this amount of water will not entirely cover the frames, after boiling a few minutes we reverse them and boil, possibly five minutes. This boiling cleans the frames nicely, leaving them almost as nice as new ones. We then scorch the hive bodies inside, and wash the outside with a strong solution of some disin-

fectant, usually the cheap coal-tar products, such as krese or hygins A. Since carbolic acid, due to the European war, has become a luxury, we also scorch the bottom-boards. We then rewire the frames, and fasten full sheets of brood-foundation.

This "occasional cleaning up" is an advantage, as it gives us some very nice new combs at the end of the following season, in place of a lot of old ones, many of them filled half or more with old pollen—too old, probably, for the bees to make much use of. We try to be very careful not to carry any foul-brood germs out of the room where the rendering is done, by stepping on particles of comb which may become scattered when cutting combs from frames. Before leaving the room we wash the bottoms of our shoes with the disinfectant mentioned.

EXTRACTING THE HONEY FROM CAPPINGS BY CENTRIFUGAL FORCE

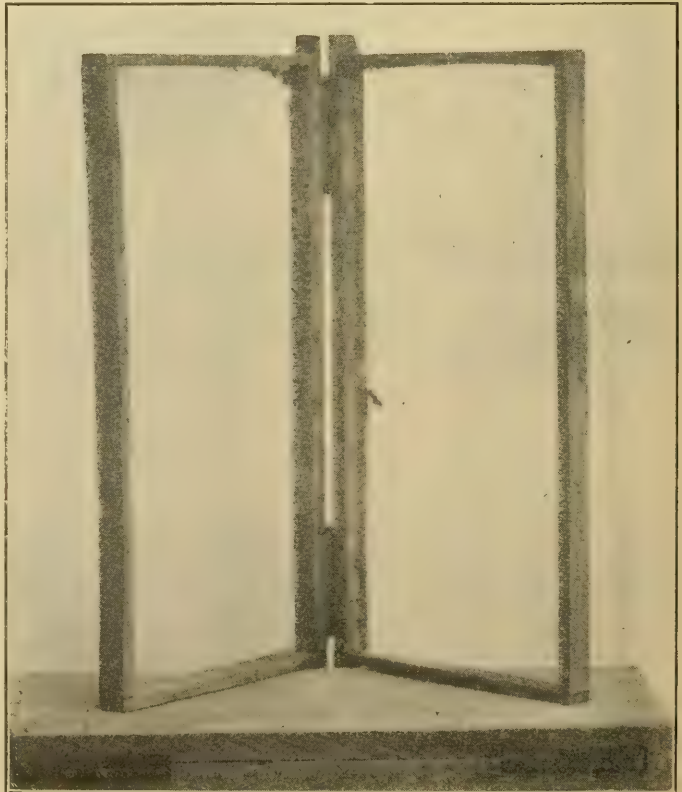
BY C. E. FOWLER

I have been using folding pockets for extracting the honey from cappings, small pieces of comb, or even sections that are not salable.

The pocket is made of two frames of $1\frac{1}{2} \times 7\frac{3}{8}$ strips, hinged with leather. By making the lumber thinner the pockets could be made to hold eight sections $4\frac{1}{4} \times 4\frac{1}{4}$, or a gallon of cappings.

Large beekeepers may not want to bother by extracting cappings; but for the small beekeeper it saves a lot of fussing, and finishes the job all at once, even to rendering the wax; and the room can be all cleaned up the same day. The mesh of the netting is $4\frac{1}{2}$ to the inch, but finer would probably be just as good, or better.

Hammonton, N. J.



Folding pocket for extracting cappings in an ordinary honey-extractor.

A RACE BETWEEN HONEY AND WAX

BY A. J. WRIGHT

Possibly some of my experiments may be of interest along the line of wax production in the season of 1912, the best season with me for the production of honey in this locality for several years. I selected two strong colonies, one intended for wax production only, and the other for honey. Both colonies were very strong. I may say that the colony selected for wax in previous seasons had shown a marked proclivity for depositing wax in every available place inside the hive, and giving a comparatively small surplus of honey. The colony selected for honey production showed opposite traits in a marked degree, everything being clean and neat, and the honey going where it should. Having decided to let the wax colony have its own head, I also decided to put it in financial competition with the honey colony referred to.

About June 1, when white clover began to appear, I put on the wax colony an eight-frame hive-body, the same as the lower hive, without a queen-excluder: The upper hive contained eleven boards, the same dimensions as the regular frames, but only half an inch thick. The hive was leveled, and the half-inch boards had a wire nail driven in each opposite end, near the top to rest on the tin rabbets. No spacers were used, the boards being spaced by guess $\frac{1}{2}$ inch apart. A $\frac{3}{4}$ -inch strip was tacked on the top of the upper hive to give wax space under the cover. A similar hive-body was prepared and set aside to be used later on. A single frame of brood in various stages of development was taken from below and placed above (removing two of the boards for the purpose). I was careful to leave the queen below. This brood was for the sole purpose of inducing the bees to go above. Altho no excluder was used, yet the queen was never found above thru any of the manipulation that followed. The capings of all honey below for two inches or more below the top-bar were broken by passing a knife flatwise over them but not enough to make the cells leak. Before the wax-boards were placed in the upper story each board was painted with a thin coating of hot wax, both sides. The following outfit I found necessary: A knife with blade long enough to reach to bottom of the hive, and turned up at the end like a miniature hoe, and a scraper. The knife was used to scrape the wax from the wall of the hive by an upward motion, and the scraper to remove the wax from the top of the frames

in the lower hive, from the under side of the cover, and from the wax-boards in the upper story. I used a wooden device to remove the wax from between the frames below. The small end, which was $1\frac{1}{4}$ inches long, was inserted between the top-bars, and a downward motion on the handle raised the wax to the top of the frames. In addition to the above there should be a pan long enough to allow one of the wax-bearers to stand on end, and of sufficient width and depth to hold the comb or wax scraped off.

Everything being ready, developments were watched with interest. The honey-flow was now on in earnest, and in three days' time the cover was removed, and wax in a limited amount was found in patches between the cover and top of wax-boards. One of the wax-boards was removed, and spurs of wax or comb were built out from the sides of the board and the adjoining one, and also from the sides of the hive, but I decided not to remove any at this time. Four days later I decided to remove what there might be anyway. I undertook to remove the cover; but in doing so I snapped off the blade of a new knife. I then inserted a hive-tool, and, removing the cover, I found parallel ridges of wax following the tops of the wax-boards and the top of the frame. I then removed the upper story entire, and put the one prepared as mentioned above in its place, first removing with the wooden device all wax from between the top-bars of the lower hive, and with the scraper all wax on top of said top-bars. I then removed each wax-board and shook the bees on to the wax-boards in the upper story; then the end of each wax-board was placed in the pan, and with a downward motion of the scraper the wax was removed from each side of the wax-board, and so for each one, but leaving a coating of wax on each board as a foundation for future work. The frame of brood was now returned to the lower hive after carefully assuring myself that no queen-cells had been started. I weighed the comb gathered, and found I had 12 ounces before rendering. The following week I took 18 ounces, and after that I removed the wax every four days during the honey-flow. The largest yield in eight days was $13\frac{1}{4}$ pounds. The total amount of wax received from this colony after rendering was 16 pounds. This, at 32 cts., made the gross receipts \$5.12. The colony set aside for comb honey gave a surplus of 152 lbs., at 15 cts. per pound for

60 pounds white, \$9.00; 12 cts. per pound for 92 lbs. dark, \$11.04, making the gross receipts from this source \$20.04.

My conclusion is that wax in this locality as a main crop is not practical. In some sections, no doubt, it might pay where the seasons are long, and an inferior or cheap grade only of honey can be produced.

For wax production the following I regard as absolutely necessary: A very strong colony, and one especially given to wax production; an extra good honey-flow, and a warm super, so that wax can be worked by the bees at all times.

Bradford, N. Y.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sightings among the Bees

BY H. H. ROOT

In factories where comb foundation is made and wax is bought in large quantities it is necessary to break open every piece of wax in order to tell its color so that it may be graded. Two grades are usually made—one for brood foundation and the other for super. In this process some very amusing cases of adulteration are occasionally found. If I were going to adopt dishonest practices in order to gain a livelihood, beeswax is about the last thing that I would try to adulterate, for such adulterations are so easy to detect.

Here are two instances of adulteration that are almost laughable. The first illustration shows a cake of wax, the inside of which is tallow. The party who fixed this up evidently placed a few pieces of tallow

in the dish and then poured in the melted beeswax. The first crack with the hammer revealed the tallow, which, as the photograph shows, can be seen very plainly. And if the tallow had been melted and thoroly mixed with the wax it would have been even easier to discover, for a very little tallow mixed with wax makes a "sticky" combination, entirely different from pure beeswax.

The second illustration shows a couple of zinc fruit-jar lids surrounded by beeswax. If the price of zinc continues to go up I wonder if the time will not soon come when this particular man would find it more profitable to pour wax into the lids and sell them as scrap zinc!

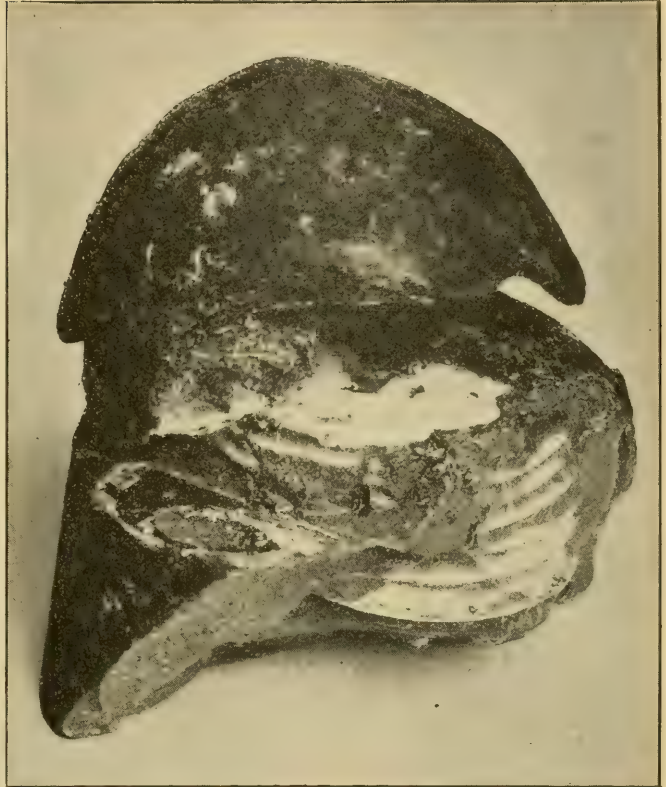
For a good many years I have read all



A cake of wax adulterated with tallow. If the tallow is melted and mixed with the wax it makes it feel sticky. In this instance hot wax was poured over pieces of tallow, which showed very plainly when the cake was broken up.

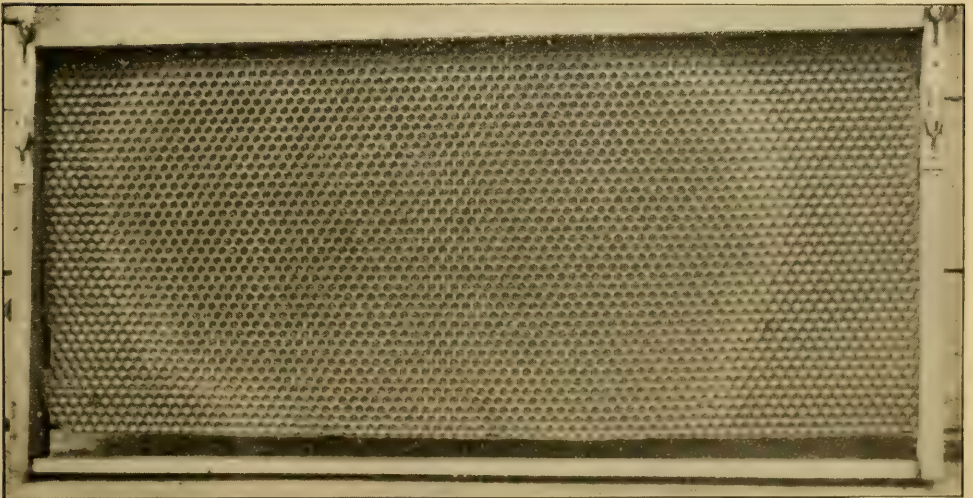
the discussions in GLEANINGS on the subject of the amount of honey or syrup required to enable bees to secrete a given amount of wax, and I confess to a growing feeling of "you'll have to show me" in regard to the statement that it takes fifteen (or even seven pounds) of honey to produce one pound of wax. The amount of comb that bees sometimes build when confined in a cage tends to disprove these theories. No doubt, under certain circumstances, if fifteen pounds of honey were fed to a colony, not more than a pound of wax would be secreted; but what of the amount that the bees feed to brood, and actually consume for their own sustenance?

How a sheet of foundation does "grow" when the bees get at it! In case of foundation they draw out the cells about $\frac{3}{8}$ inch, on the average, before being obliged to add new wax. But when a strong force of bees clusters on a sheet of foundation during a warm day when honey is coming in just



Zinc fruit-jar lids make a novel form of adulterant for beeswax.

right, and they need the room, they will go far toward changing the foundation into comb in ten hours' time.



Full sheet of comb foundation partly "drawn out" into comb.

PROFITABLE PRODUCTION OF BEESWAX

Running Combs, Honey, and all thru the Solar Extractor

BY JOSEPH GRAY

The editor has struck a line of thought that interests me greatly since honey is going down in price and wax rising. Furthermore, the cost of cans and cases is going up. For 500 lbs. of beeswax we need only a few sacks for shipment, and a one-horse rig will haul it. At 30 cents per lb. it represents a value of \$150.

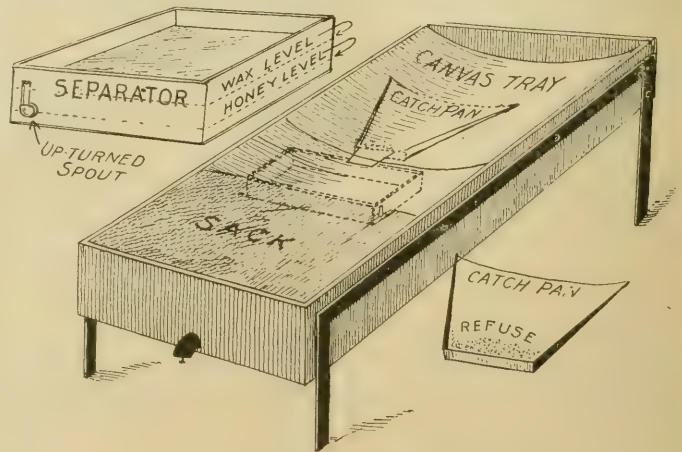
I was well satisfied with last year's wax production, which I considered as important as the honey production. In certain parts of the season, ready-built comb is a big advantage; yet there are times when bees want and will build comb. When honey comes rolling in I space eight combs in a ten-frame super. This makes the combs weigh 8 to 10 lbs. each; and when uncapped they yield an abundance of wax. To uncap I use a butcher's saw, and use it in the same manner as a butcher uses it — with a downward cut and a sawing motion. The thin narrow blade cuts the cappings readily. I have a wet sack in my uncapping-box, and when full of cappings it is lifted out so that there is no handling of mussy cappings. An extra tub is handy to carry the sack of cappings.

The illustration shows my solar extractor which was originally a milk-cooler—the best solar I ever used. It is 6 feet long, 3 wide, and 1 deep, with a 1½-inch faucet. The cappings are carried and dumped on to a loose canvas tray, the tray supported by wire cloth, and having an extra canvas fastened down with the wire cloth. A catch tin is slipped under the lower end of the canvas tray, which holds back the refuse. This is made out of the end of a five-gallon can. The honey and wax run into a five-gallon oil-can that has a turned spout. The honey, when it reaches the level of the spout, runs out into the lower end of the solar, and is drawn off by the faucet. The sack shown in Fig. 1 protects the honey from the direct rays of the sun. The wax furnishes all the protection needed in the wax-mold. The mold is in the sun all day, so that the wax keeps liquid and makes a uniform cake

which cools during the night. In the morning the wax is taken out and left to finish cooling, and a fresh mold put in. It facilitates the work to have an extra catch pan and canvas as well as an extra mold.

There is no better material for a mold than the thin tin of a five-gallon can. The sides will spring out and release the cake of wax. The cake of wax is washed, and, if necessary to free it of honey, scraped on the under side, leaving it in good condition for market.

So satisfied am I with wax production on account of its low cost in labor, etc., that I have been seriously thinking of extending



its production by cutting out the combs one inch from the top-bar and increasing the number of solars. I would melt everything in the solars, discard the uncapping and extracting, and I would put back the frames with one-inch strips of comb and allow the bees to rebuild the same above an excluder. My reasons for doing this are threefold:

1. Less work; the manipulation of combs in the solar, instead of uncapping and extracting, would cut the labor bill in two.

2. We have sufficient sun heat to make it a success here in Imperial Valley—no cost for artificial heat.

3. By the method used in my arrangement of the solar, the honey, as soon as it is melted, is under cover, and never burned. In fact, it is improved rather than impaired by passing thru the solar. I figured that, when I had once a full set of combs, the work would be clean—no refuse—and I would have a fine grade of honey and

wax. Excluders would have to be used, and it would be best only to half empty a super at one taking, alternating the combs.

To feed back honey in Miller feeders, and produce wax only, would not be necessary for me, as I am close to railway facilities; but if I were located where nothing could reach me but pack mules, then I certainly would produce wax only.

Honey nets us 4 cents per lb., and wax 26 cents. It takes the bees an average of six pounds of honey to produce one of wax—a gain of 2 cents. Combine this with the low cost of production less risk of thief, cheaper hauling, warehousing, freight, it ought to pay at present prices.

Heber, Cal.

COLLECTION AND EXPORTATION OF THE WAX OF WILD BEES IN AFRICAN COLONIES

BY A. S. ASHTON

Michel E. (Agricultural Engineer at the Ministry of the Colonies), in *Bulletin Agricole du Congo Belge*, Vol. V., No. 2, pp. 385-395, Brussels, June, 1914.

This paper contains information on the wild-bee honey in the African colonies, a description of the native methods of bee-keeping in the Belgian Congo, in the Sudan, and in Tunis, and of the improved methods of separating wax (melting by solar heat, in a stove, in boiling water).

The trade in wild beeswax is constantly increasing in most of the African colonies, especially in Gambia, Gold Coast, Nigeria, Soudan, Uganda, British East Africa, German East Africa, Mozambique. A few years ago the exportation of wax from these countries was insignificant, while now it amounts to many tons. Wax occupies the third place in the export trade of Angola (Benguela supplying 90 per cent of the exports of the whole province). Angola exports every year 600 to 700 tons of wax; Mozambique about 100; Portuguese Guinea, 50. The wax is exported in cakes

weighing 253 to 264 lbs. each. The quantities of wax exported the last few years from German East Africa and from the British African colonies are given by the following table:

	Year	Export of Wax	
		Weight lbs.	Value
German East Africa.....	1911	802,347	\$197,175
Gambia	1912	19,498	5,602
Nigeria	1912	12,862	1,875
Uganda	1912-1913	263,408	
British East Africa..	1912-1913	139,207	36,630
Nyasaland	1912-1913	110,609	26,675
Soudan	1912	43,704	11,585

Wild beeswax, when well purified, is comparable to European wax. The Central Administration of the Belgian Congo had some samples of wax from the Colony examined, and among them many of good quality were found. Bees are widely spread in the Belgian Congo. The natives extract honey, but do not make any use of the wax, the value of which is unknown to them.

Beauharnois, Quebec, Can.

NIX ON THE SOLAR

BY W. J. OATES

I consider the solar wax-extractor the biggest nuisance in the apiary. In the first place, it does not put either the wax or honey in *merchantable shape*; next, in out-yards, where the cappings are left to melt out, and you are not there for ten days, they condense all the moisture in the atmosphere, and your *honey is sour*. Then it's one of the stickiest messes to clean that ever was.

The cost of glass is a big item, unless everybody else plays in better luck than myself. What the carelessness of the help, and wind, and mischievous boys, etc., all thru the experience of 20 years they are by far the most expensive thing to keep up connected with beekeeping when one figures the usefulness of them. But away and

above all the foregoing objections is the fact that they are the worst disseminators of disease we have. In my duties as inspector I can trace the loss of hundreds of colonies to the solar extractor. Combs full of disease thrown in them are afterward scooped out and put in a box or thrown around any way, so that everybody's bees can help themselves. Over 90 per cent of the solar wax-extractors that I have come in contact with are either leaky or so ill fitting from the moths that bees can get in and perish by the thousand.

A German wax-press costs but little, and it is the finest place for scraps there is, and when it is full one can squeeze out the honey in no time; and it is good and not discolored, or half water, as when left in a

sun extractor. The press can then be put on a fire and melted out right away if desired.

My method for outyards is to let cappings drain as long as I can, or perhaps until the next extracting, then squeeze all the honey I can get out of them. Sack

them up, and haul home. At the end of the season, or whenever there is a slack time during the season, I throw them into a large vat with plenty of water and melt down, and dip and strain it into molds at the rate of 1000 lbs. a day, and the "mess" is over with.

Lompoc, Cal.

USING THE SEVERIN SEPARATOR WITH THE PETERSON MELTER

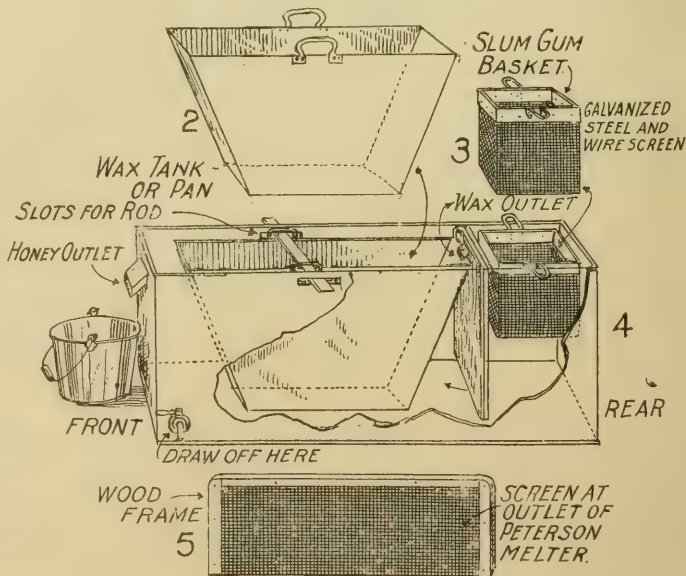
BY J. E. JORDAN

The Peterson melter and the Severin separator are the best two articles which I have yet found to get all of the wax and honey from the cappings at extracting time. To use the Severin separator with the Peterson melter you must elevate the rear of the melter so the melted cappings will run to the outlet. If the outlet of the melter is left as it is at present, small pieces of unmelted cappings will run out and into the wire basket of the separator, and in time will choke it up so it will fail to work properly. In order to prevent this I make a framework of wood to which I tack heavy wire cloth (see No. 5), and place this in the melter across the part where the outlet begins to narrow. As the surface of the melter bows up a trifle, there will be a small space at each end, large enough to allow melted wax and honey to escape, but narrow enough to keep back all unmelted particles. Pieces of cappings will sometimes pack at the outlet. In order to prevent this I have a small paddle handy with which to rake them back every now and then allowing the liquid to pass and go into the separator basket.

For the benefit of those not familiar with the Severin separator I will give a brief description of it. The specifications of it have been given in GLEANINGS, but new subscribers who missed that issue would not have access to it.

The separator is a tank of galvanized steel, 21¾ inches long, 10½ inches wide, 9¼ inches deep. This is the outside tank. There is a partition in one end 5½ inches from the end, which extends nearly to the

bottom of the tank. The liquid from the melter drops into the wire basket which strains it, catching all of the dirt and slumgum. The honey, being heavier, goes to the bottom and under the partition; and, when the pan is full, thru the square-lipped opening at the further end. The wax, being lighter, continues to rise until it reaches the lipped opening in the partition, thence into the pyramid-shaped wax-pan. When the



day's work is done, beat the slumgum out of the wire basket. This slumgum should be kept in a small can, and at the end of the year's work it should be rendered again to obtain the remaining wax. Do not draw off the honey from the separator until everything is cold. The cake of wax in the pan will be clean, light in color, and ready for market.

When first started to work, the separator should be primed with warm honey over the partition opening into the bottom of the tank, else some wax may find its way into the honey.

Morgan, Ky.

AN EFFICIENT SOLAR EXTRACTOR

BY C. D. CHENEY

It is a known scientific fact that a bright polished surface radiates much less heat than a dark dull surface. Tin and galvanized iron are materials mostly used for lining the solar extractor, which, in view of the fact just mentioned, are not well suited to the purpose. Therefore, applying the principle, make the lining of "black iron," also known as stovepipe iron. I believe there need be no fear of the iron affecting the wax, nor of any rusting inside. It would be advisable to paint the outside to prevent any rusting there. Put in some sort of insulation (the more the better) between the lining and the case. I would say, preferably several layers of old woolen carpet or horse-blanket, neatly fitted and securely tacked in place before the lining is set in. the lining should fit snugly against the insulation all around.

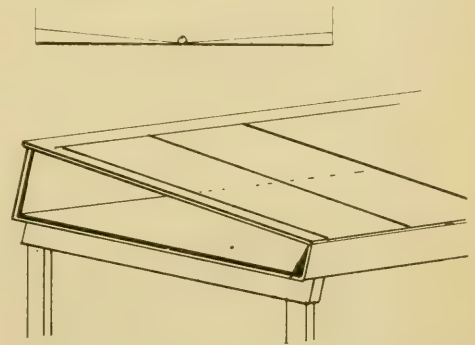
An apparatus of this kind deserves as much care in construction as any capping-melter or honey-tank, if compensating results are desired. It will be readily understood that the purpose of the black iron and insulating material is to get as much absorption of heat as possible during sunshine, the same to be conserved and utilized to the limit.

Then, departing quite radically from present practice, place the extractor the long way from east to west (assuming it is made longer than wide), with the bottom pitched toward the south; and have the lower (or front) angle of the lining slanted from the ends toward the center, where the outflow should be, at the lowest point, so that the wax can get away from the residue by the shortest route, and find a gutter free from obstruction to the outflow.

Then, again, make the case something like a hotbed frame, shallow at the front and deeper at the back (north) side, say 3

inches at the front and 6 at the back. This may seem rather shallow; but it should be remembered that the combs are melted by the direct rays of the sun, so that piling combs one on another causes a positive loss in efficiency, at the same time causing the melted wax to flow down over unmelted combs where it may be held indefinitely instead of flowing promptly to the outflow.

The main reason for this shallowness is to bring the glass as near to the combs as practicable, and, no less important, to eliminate useless air-space, so as to utilize the solar rays with the least loss and to the best advantage.



If greater capacity is required it would be better to increase the superficial area rather than to increase the depth at the loss of efficiency.

It may be necessary to make a sash specially to suit the sidewise pitch; but aside from this no additional cash expense is involved. No crevices or openings should be allowed—in fact, a solar should be as nearly air-tight as possible, not considering the outflow. The sketch will make the description more plain.

Hoboken, N. J.

THE CHANGES WHICH OCCUR IN THE EGG

BY DR. JAS. A. NELSON

[A book has been recently published by Dr. James A. Nelson, of the Bureau of Entomology, entitled "The Embryology of the Honeybee." We gave an editorial notice of the book on page 966 of our December 15th issue, and the same is now advertised in our columns. It is evident that beekeepers have supposed this work to be too technical to be of any practical use. As a matter of fact, it can be and should be of immense help to them. In order that the reader might have some idea of what it is, we have asked Dr. Nelson, the author, to tell us very briefly some of the things that are in the book, especially those relating to the changes that occur in the egg. This is the time of year when beekeepers can take a look into the hive and see some of the things that Dr. Nelson describes.—ED.]

The editor has suggested that I write for the readers of GLEANINGS a brief summary of the results embodied in my book "The Embryology of the Honeybee." This is a difficult task, since changes which take place

in the egg are so wonderfully intricate that they cannot all be successfully condensed into a summary which would not seem dry and technical. Instead I have endeavored to sketch certain phases of the

development in the egg, which may be of special interest to the beekeeper.

The vital processes which take place in the egg of the bee after it is laid, and by which it becomes a larva, are as much a mystery to the average beekeeper as are the problems of human consciousness or the extent of stellar space. It is to be feared that to him an "egg is an egg," just as in Wordsworth's much quoted lines in "Peter Bell:"

A primrose by a river's brim
A yellow primrose was to him,
And it was nothing more.

One of our leaders in science, a well-known university professor, used annually to quote to his classes the following lines (and does yet, for all we know!):

Flower in the crannied wall,
I pluck you out of the crannies;
I hold you here, root and all, in my hand,
Little flower; but if I could understand
What you are, root and all, and all in all,
I would know what God and man is.

This is surely a more reverent attitude to take in the presence of the miracles of Nature.

It is not possible to know or understand all that takes place in a living organism; but by patient investigation we can learn to know much, and this knowledge is of inestimable value, even altho it teaches us to recognize only the infinite extent of the mysteries of Nature and the relatively infinitesimal extent of human knowledge.

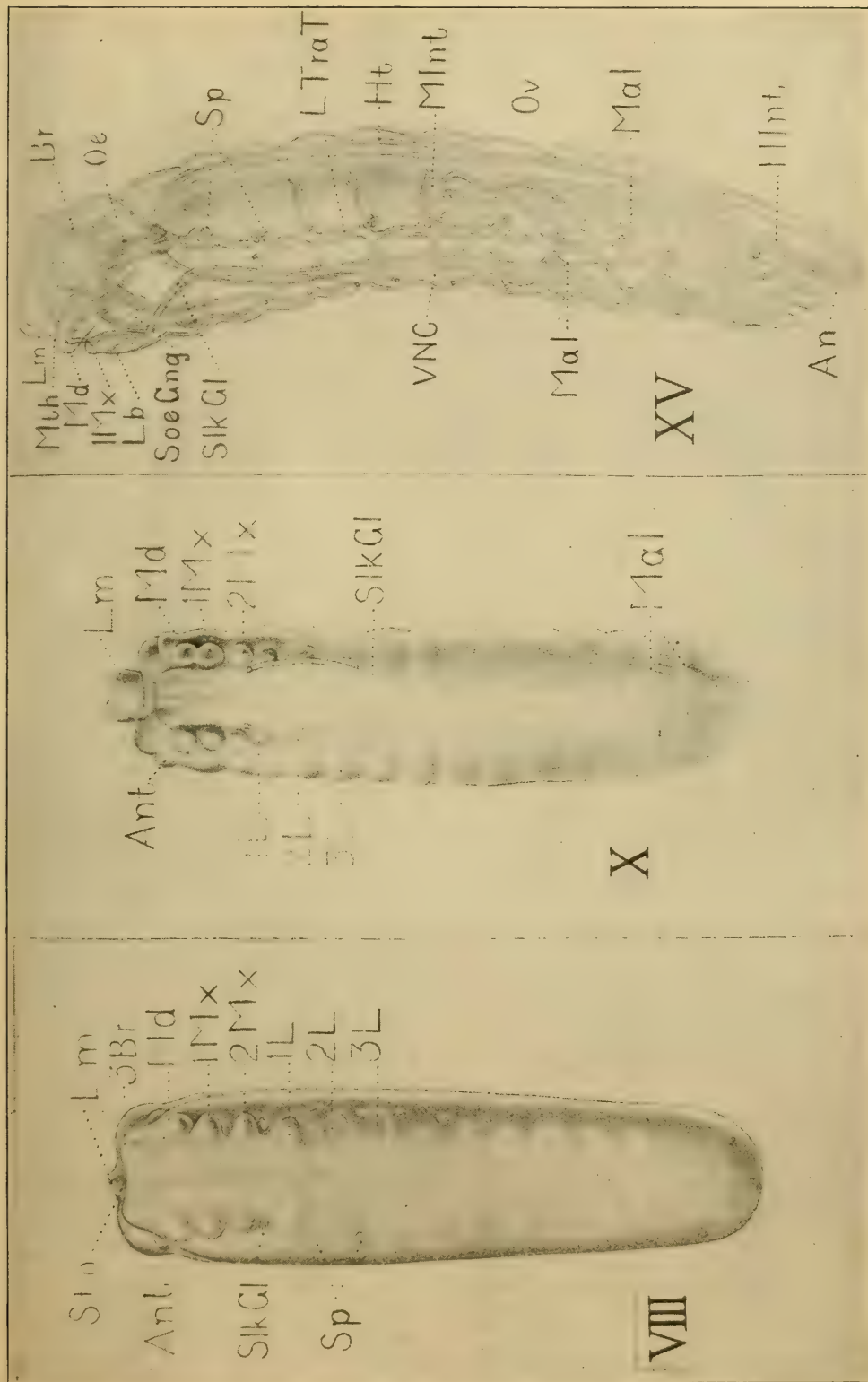
An investigation of the development of the bee's egg of course brings to light many interesting and curious facts. Among them one of the most striking is the rate at which development proceeds, or, rather, appears to proceed, since we can judge the rate only by what we can see, and we have no means of valuing the amount of energy required by the different developmental processes. The whole course of embryonic development may be divided into two periods: 1. That in which is prepared the material required for the formation of the embryo. 2. The actual visible construction of the embryo from these materials.

The bee-egg, like every other egg, commences its embryonic development as a single "cell." This "cell" is the unit of structure in all living organisms, and for present purposes it may be considered as a minute portion of living substance, having the power to reproduce its kind by self-division. This cell is in the bee egg imbedded in the yolk, which makes up the bulk of the egg, the entire egg, of course, being enclosed in a thin and tough membranous shell, the "chorion." This single cell divides into two

cells, these into four, and so on until a considerable number are scattered thru the yolk. Then these, still continuing to divide, come to the surface of the egg and, "joining hands," so to speak, form a layer all over the surface of the egg, and this layer by a further increase in the number of the cells becomes a sort of skin, the "blastoderm." The number of cells making up the blastoderm is several thousand at least. In regard to their shape and arrangement, they may be imagined as extremely minute paving-stones. This stage is not reached until about thirty hours after the egg is laid—much more than a third of the time required for complete development, 76 hours. During the next fourteen hours the blastoderm becomes folded lengthwise of the egg in such a way that three layers of cells are formed over the whole length of the egg on its longer curved side. A number of cells are also heaped up at the two ends of the egg, and these last cell-heaps are destined to form the entire stomach or "mid-intestine" of the larva. This closes the first period. The materials for the construction of the embryo are now all prepared and laid in the proper places. It is important to note that the egg is now nearly two days old (44 hours), and that all this time has been consumed in the preparation of the material. During the next 32 hours, Dame Nature gradually molds these materials into the form of a bee-larva. At 46 hours (Fig. VII.) the rudiments of the brain and of the appendages—mouth parts (Md, 1Mx, 2Mx) and legs (1L, 2L, 3L)—make their appearance as rounded swellings. The mouth (Sto), the silk glands (SlkGl) and the tracheæ (Sp. —) also show themselves as pits or inpushings of the surface layer (ectoderm). The remainder of the development consists principally in the elaboration and completion of the parts already laid down as rudiments.

The material required for formation of the cells themselves, and the fuel necessary to supply the energy expended by them in their movements and subsequent metamorphosis into organs and tissue, is furnished by the yolk, which gradually shrinks away from the ends of the egg, and, later, from its lower side. Finally the yolk becomes enclosed by the mid-intestine (stomach) of the future larva and is then completely digested.

One of the first external evidences of commencing development is the shortening of the egg within the egg-shell, and the spaces left at the two ends of the egg, between the egg and the shell, are filled with a clear fluid. The egg continues to shorten



Some of the changes that take place within the egg of the bee.

slowly while the embryo is developing. At hatching, the embryo, now a completely formed larva, suddenly lengthens, and after hatching is considerably longer than the egg from which it came (Fig. XV.).

The process of development has been spoken of above as a molding process, guided by an external force, and so it seems at first glance. It is, however, much more wonderful, since it is really accomplished by the cells themselves, each of which has its proper destiny to fulfill, whether it be to form a nerve-cell, a skin-cell, or a stomach-cell. One is almost tempted to think that every cell "knows what to do"—where to go and what form to take—so accurately do the cells, at first all alike, group themselves and change in accordance with the duties they have to perform. It is like a colony of bees, some of which act as guards, some as nurses, some as gatherers, etc.; only in the egg the organism is much more precise and the final effect much more harmonious and complete. This is the real riddle of development. It still remains unanswered.

Some one may ask, "What good is such knowledge to the beekeeper?" The answer is that it is of no *immediate value*, in dollars and cents; but that to make effective progress in beekeeping a thoro scientific knowledge of the bee is necessary, and this knowledge comprises the anatomy, the behavior, the physiology, and the development of this insect. No intelligent beekeeper will deny that a knowledge of the structure, development, etc., of the larva might become of great practical value in queen-rearing, and yet the larva cannot be thoroly understood

without knowing its earlier development in the egg. Moreover the thoro study of any scientific problem, especially if it relates to an animal or insect of practical importance, is reasonably certain, sooner or later, to prove of value, often in the most unexpected way. The greater part of our marvelous advances in applied science and invention rest upon a basis of investigation which in its beginnings held no promise of ultimate commercial value. For example, the study of entomology for many years—in fact, up to quite a recent time—was regarded as merely an intellectual diversion for cranks having leisure and means. Yet the work of these supposedly harmless lunatics forms the basis for the tremendous annual saving to the farmer and fruit-grower by the prevention of insect injury.

The table given below will serve to summarize the brief account just given, and shows the principal changes taking place in the egg, and its age in hours at the time that these different changes take place.

TABLE SHOWING RATE OF DEVELOPMENT IN THE EGG OF THE BEE.

Age in hours	Stage of Development
1-16	Cells increase in number by repeated division.
16-30	Cells unite on surface of the egg to form blastoderm.
30-44	Blastoderm folds to form germ layers. Formation of embryonic membrane. Preparation of materials completed.
46	Rudiments of mouth parts, legs, brain, and all important organs become visible. Fig. VIII.
54	Mouth parts, legs, and organs well advanced in development but not complete. Fig. X.
76	Development of egg completed. Egg hatches. Fig. XV.

MASSACHUSETTS MEN INDEPENDENT

BY B. N. GATES, SEC.

A most successful meeting of the Hampshire, Hampden, Franklin Beekeepers' Association was held in the Board of Trade rooms, Springfield, Mass., on May 13. This, the annual meeting, was postponed from March 16, when it was to have been held in Amherst in conjunction with the beekeeping meetings during Farmers' Week.

Much the same program was followed. The election of officers resulted as follows: President, C. M. Smith, Florence, Mass.; Vice-presidents, A. C. Andrews, Hayes Ave., Chicopee, Mass.; Rev. D. D. Gorton, W. Springfield, Mass., and L. R. Smith, Hadley, Mass.; Secretary-treasurer, B. N. Gates, Amherst, Mass.

Among the other official business was the amendment of the constitution, whereby

action of June 13, 1912, for the affiliation of this society with the National Beekeepers' Association, was rescinded. Unanimous vote also re-established the annual fee to fifty cents per annum. Further modification of the constitution and by-laws was of minor importance.

Among the papers read was the annual address of the President, C. M. Smith, who presented numerous "Timely Suggestions to Beekeepers." By way of a report of progress for the committee on honey-labels and standard packages, Dr. B. N. Gates, chairman, explained what constitutes an attractive label. Mention was also made of the standardization of honey-containers, particularly small glass containers. After the report, discussion followed, wherein it

was particularly emphasized that beekeepers give more and more attention to supplying their customers sixteen ounces for a pound package and eight ounces for a half-pound package. It is being considered by the association to adopt a label which members of the association may use. This attached to their products indicates their affiliation with the local society and is thought to be of advantage in selling local products.

A most interesting address followed by A. W. Yates, of Hartford, Ct., entitled "Spring Handling of Bees."

A committee consisting of the president as chairman, the three vice-presidents, and

the secretary-treasurer, was appointed to wait upon the managers of the agricultural fairs for the purpose of obtaining proper recognition of beekeepers for displays of beekeeping products at these fairs. It was left to the Executive Committee, and the Secretary particularly, to arrange for the society to hear Mr. C. P. Dadant, of Hamilton, Ill., when he visits the East next August. This will constitute the field meeting of the association.

The meeting adjourned shortly before five o'clock, there having been a good attendance.

Amherst, Mass.

ISLE OF WIGHT DISEASE SHOWS VARIOUS SYMPTOMS

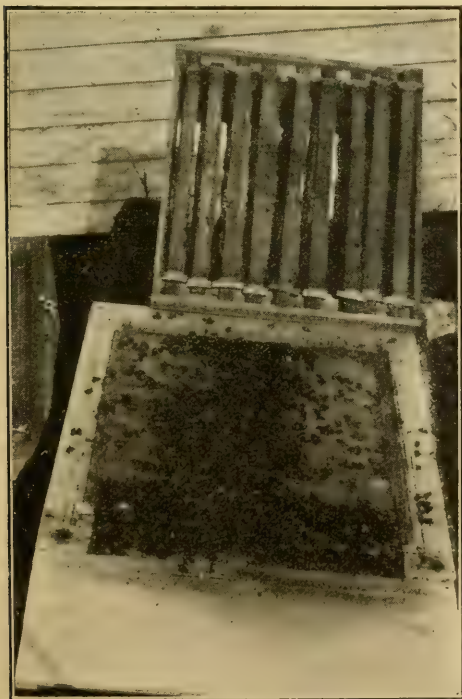
BY B. BLACKBOURNE

One of the peculiarities of the Isle of Wight disease is the different symptoms exhibited by different stocks of bees suffering from it. In some cases the sick bees appear shiny and black, active on their legs, tho unable to fly. In others they are sluggish, with swollen abdomens and dislocated wings. Some stocks die out in a few weeks, while others hang on for months, and still

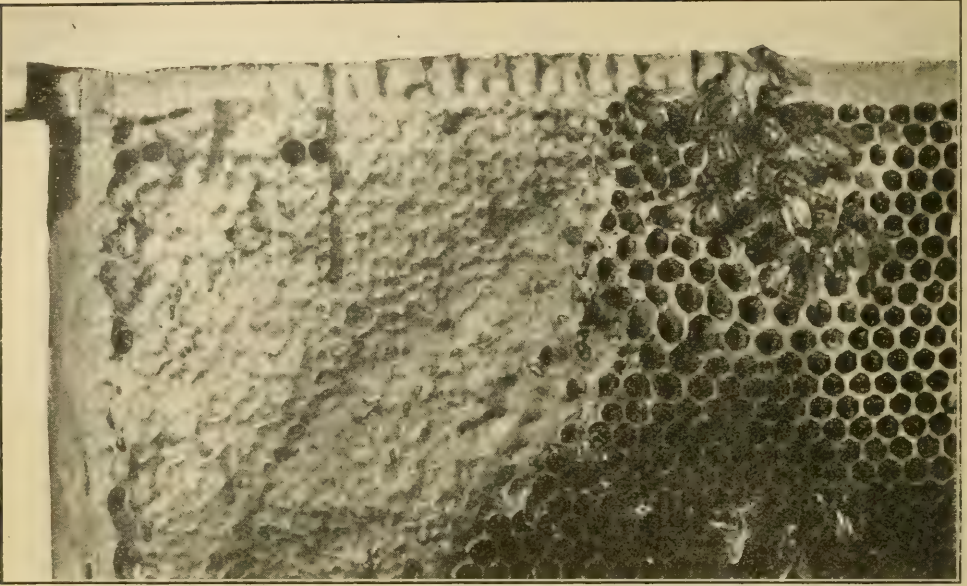
others will be found almost completely depleted of bees without having shown any crawlers or dead bodies in front of the hives.

In the spring of 1913 I was greatly disturbed by seeing crawlers and sick bees being thrown out of my hives, and took it for granted that I had miserosporidiosis. As the year advanced, however, these symptoms disappeared, the bees did very well, and appeared in normal health, so I concluded the trouble was a touch of paralysis. The next year the same thing happened; but that one stock, which did not appear to be doing much work, when examined was found to consist of brood from top to bottom (20 standard frames), and the queen laying freely, but not an old bee in the hive. Where had they gone, for there were no dead outside?

In 1915 there was no doubt that I had the real thing. There were always numbers of bees hopping about on the grass, trying to fly, and the characteristic mud-colored excrement was in evidence practically all over the hives. The worst affected was the strongest stock, which required supering, and built queen-cells in preparation for swarming long before any of the others. Practically all the stocks were affected, tho some only very slightly. Just before fruit-bloom I had to go away from home for a time, and left my apiary in charge of a young man who had been with me for a couple of years. It is a curious fact that diseased bees are frequently given to excessive swarming, and my man was kept busy hiving swarms. Very often the swarm will show the characteristic symptoms before the stock from which it sprang. Presumably this is because the greater proportion



Dead bees on the floor of a hive containing a colony badly affected with Isle of Wight disease.



A little group of bees in the last stages of Isle of Wight disease.

of bees in the colony are old ones, having the disease in a more advanced stage.

One stock is especially worth mentioning. It consisted of Italian bees, did extremely well, giving me an 8-lb. swarm and over 100 lbs. of honey (which is good here), and did not show a sign of disease all thru the year. I began to think that there must be something in the immune theory, for here, surely, was an immune stock. I took care to tell my beekeeping friends all about it. Alas for my hopes! late in the autumn I lifted the quilt and found not a handful of bees left. There were just a few with the queen clustered on one frame, similar to those in the photo.

As I expected to be leaving the country before the spring, and most of the stocks appeared too weak to winter, while it was

out of the question to sell them, I sulphured all except three of the strongest. One of these to which I had introduced an Italian queen is still alive, but diseased, and this will have to go the same way as the others.

I may say that I have tried some of the so-called cures, but have no faith in medicinal treatment. Those who are investigating the disease on behalf of the Board of Agriculture believe that they have discovered a drug that will cure the trouble, and are to experiment this year with 40 hives. If it were possible to treat all the bees in the country at one and the same time there might be some hope of success; but even supposing some stocks are cured, what is to prevent them becoming reinfected as soon as the treatment is stopped? One cannot always be feeding bees.

Ramsgate, England.

THE PORTABLE EXTRACTING-OUTFIT VS. THE CENTRAL PLANT

BY J. F. ARCHDEKIN

It was our intention at first to do all our extracting at home, using a car to move the honey home and take the combs back. After we arrived here and considered the problem very thoroly we changed to a portable outfit. We run a six-frame power extractor, and use a sectional wire-cloth house, 6 x 8 feet, with a canvas cover to work in. It is very cool; and all the machinery, including the house, is moved in three loads

on the Ford. The outfit can all be set up and made ready to run in less than half an hour, and then all our work is right at hand, nothing depending on what two or three men several miles away do or don't do. The honey is run into barrels, and these are taken along on trips home from work. Of course we have some exasperating delays when some necessary article is left at home, or when something gets out of

fix. Nevertheless, I believe thoroly in the portable outfit.

A central plant is a fine thing, and one can have it arranged more conveniently than a movable one. The greatest trouble is that it is more or less distant from a considerable part of the honey, and this fault is fatal. If the men who take off the honey shirk, it delays things. The car may have an accident, and lose more time. Or the extracting force may get behind, and the honey pile up on them. Then the owner needs to be present in all three places to get the best results. When anything gets

out of fix, hired men are apt to sit down and talk it over unless the boss is there to speed things up.

A car will stand up well the first year hauling honey home; but it nearly always develops trouble the second year. Every mile a car is run is that much of its life gone; and if it carries heavy loads most of the time, its life is still further shortened. If a hired man drives it he is not going to be any too particular with it either. Then there is the cost of gasoline and tires, and at present prices the gas-bill is quite an item.

Bordlonville, La.

MY SYSTEM OF SWARM CONTROL FOR COMB-HONEY COLONIES

BY G. C. GREINER

With the exception of a very superficial examination as early as the weather will permit (it took place April 7 this year) to make sure that all colonies have plenty of stores to carry them to the first natural-honey sources of our locality, I do not molest my bees until the apple-trees are in bloom. Then they are thoroly inspected and graded for spring management.

If I can judge other beeyards by my own they all consist at this time of these three classes: Strong, medium, and weak. According to the way they have wintered, one or the other end of the line will predominate; but the three classes are there just the same. The two latter groups are run for extracted honey; and by keeping them well supplied with empty combs in their supers it is no trouble to keep them from swarming.

The colonies in the first class (the strong) include everything that has six, seven, or eight combs of good solid brood, and the hive reasonably well crowded with bees. It is needless to say that the queens must be of the young vigorous type, for the colonies would not have come up to the necessary requirements if the queens had been deficient in this respect. Any of these colonies are likely to swarm almost any time after the apple-bloom inspection, and even if run for extracted honey it is a puzzle to keep them under subjection.

To escape this annoying swarming nuisance the colonies are divided about May 15 to 20, beginning with the strongest, that show from outward appearance any inclination to swarm, until all are taken care of; and they are divided in the old-fashioned way of taking two combs of brood with the old queen from the parent hive, and introducing a young laying queen into

the latter at the time the division is made. On account of the earliness of the season, southern-bred queens are used for this purpose. The two combs of brood with the old queen are placed in a new hive with three additional empty combs, and the rest of the hive filled out by three chaff division-boards. These latter are the same thickness as one brood-comb with its bee-space, so that every removed division-board will give room for a brood-comb. This hive so prepared is left on the old stand to catch the flying bees, while the parent hive with its introduced young queen is also filled out by two division-boards and moved to a new stand some distance from the old one.

As soon as the old queen has started brood again in those empty combs, which she generally does in about a week, one of the division-boards is removed, the brood spread, and an empty comb inserted in the center of the brood-nest. In about another week the new comb is again stocked up with brood; another division-board is removed, and a second comb inserted in its place. The same procedure is repeated with the last division-board, so that, by the time the white-clover flow is opening, the brood-chamber is filled with brood, and all the incoming honey has to go into the super. However, it must be remembered that this is only an outline. Time and space will not permit to give all the connecting details, which must be left to the judgment of the operating beekeeper.

The removed parent hive is managed in practically the same way as the newly formed swarm with the old queen. As it takes a few days longer for the introduced queen to be liberated and laying, the exchanging of division-boards for empty combs will be delayed that many days. But

after she is well established in her new home she will keep the empty combs, which are also placed (one at a time) in the center of the brood-nest, well filled with brood; and by the time the white-clover flow begins, these colonies, too, are compelled to store the incoming honey in the sections. From these colonies, if I do not use all of them for this purpose, I select my comb-honey producers. They are in the very best condition for surplus-honey production, without letting their ambition and energy run to swarming. The question, "Why don't they swarm?" is easily explained. They have a young queen which is not likely to swarm; all their working forces are young, ambitious bees, every one being eager to gather honey, and not one old enough yet to let thoughts of increase by swarming trouble its mind. Then by the judicious use of added supers with full sheets of foundation and bottom starters, and a liberal supply of bait-combs, swarming is practically out of the question.

One super at a time will accommodate the strongest colony that any hive contains;

but another must be given, when needed, and a third one added whenever conditions require it. It is not the amount of empty super-room given at one time that keeps bees from swarming, but the gradually added working surface as fast as the bees will occupy it. As a rule, to assist bees in drawing out foundation, two supers are all they should have at a time—three for a short time may be permissible. If more room is needed, another may be given below, and the top one removed by means of the bee-escape. This crowds the working forces again on to the new foundation, and keeps them busy drawing out and storing. No matter if there are still some unfinished sections in the upper one, they can be easily finished by feeding after the honey-flow.

Equalizing at the beginning of the honey-flow by way of exchanging heavy combs of honey with adhering bees from the supers of overly strong colonies with empty combs from the supers of the weaker ones will also tend to prevent swarming. I apply this same principle to rows of sections from the supers of the comb-honey producer.

LaSalle, N. Y.

THE IDEAL BROOD-NEST FOR OUT-APIARIES

An Eight-frame Hive-body and Shallow Extracting-super Make an Ideal Brood-Apartment

BY J. J. WILDER

When Editor Root visited me a few years ago we were getting our bees in shape for the first great honey-flow in early spring. He asked whether we were supering the bees at that early date, for all our hives consisted of one eight-frame body and a shallow extracting-super on top. I told him that this was our regular brood-apartment, and we went fully into the merits of such an arrangement. It provides greater bee production, quicker manipulation, and reduces swarming almost to a minimum. At the same time the greatest possible amount of honey is harvested, and of the fanciest grade.

With a good equipment almost any apiarist can produce extracted honey; but it requires more skill to produce comb honey in one-pound sections or bulk comb honey, when it will make the greatest and best pack. This is all the more true when it comes to producing it in a wholesale way with the smallest amount of labor.

I have bees in all kinds of southern locations, and the short cuts to great results has been my aim all the time. There are a great many locations where a single eight-

frame shallow extracting-super makes an ideal brood-chamber without any additional room, and there are still a greater number of locations where the brood-nest should never be larger than the capacity of a regular eight-frame hive-body. But in such locations we are troubled but little with swarming, and no great crops of honey are ever expected. It does not require the skill, etc., that a location does where there is a great abundance of pollen, and where brood rearing is kept up at a great pitch, especially at certain times, when the bees contract the swarming fever. Under such conditions it takes an ideal arrangement for the apiarist to cover a great field. This we have in the eight-frame hive-body and shallow extracting-super with the regular frames that go with them. The hive-body contains the regular continuous nest, and this we do not break up any more than we can help. The super we place either over or under this.

This super, with more or less honey, is left on over winter. (Of course in the North, where bees are wintered in the cellar, they could be removed and set away; and

when the bees are set out the following spring the heaviest supers placed on the lightest colonies, thus equalizing stores, without greatly disturbing the bees).

On our first round, which is about the first of March, these are raised up a little at one end, a peep taken at the bees and stores, and if anything is wrong a mere glance reveals it. If the bees should be short of stores they are smoked out of the super, and a heavier one given from some heavy colony, but in most cases the light frames are exchanged for heavier ones, and thus the stores are kept equalized.

Ten or twelve days later the super is tipped up again to see how brood-rearing is progressing; and if the bees are crowding into the super we know all is well. If not, the super is set off and we examine the nest below and mark the colony by laying a stone or a stick on it so that at the next round we may know the ones needing special and immediate attention.

The others in the yard are making progress, and ten or twelve days later we do not tip the super, but just tip or remove the covers. By this time the queens are moving up in the supers, and we can easily find and lift out some frames of brood from the super and exchange them for empty ones in the weaker colonies; but if there should be no bees in the super of the weaker colony this is not done, but the entire super is removed and placed under one in which the queen had made great progress, thus giving her more room at a time when such colonies would soon be contracting the swarming fever.

On our next round, which is only about eight or ten days later, the weaker colonies are ready for a super of sealed brood and therefore they get a super back. At this time the queens in the strongest colonies are occupying all combs not filled with honey. On our next round, six or seven days later, we might expect just a little honey coming in, so the supers nearly filled with brood in all stages of development are removed and placed under the lower story, and a storing super placed on top. On the next round, in six or eight days, many of the colonies are ready for this, and on this round our regular ferring-sticks are placed on the bottom-boards, thus giving the hives a good under ventilation from end to end, the sides of the hives being supported by sticks one inch square and the length of the hives. By the next round all hives expected to go into the honey-flow are thus ventilated. Sometimes a little brood may be chilled and thrown out on account of so much ventilation; but in case of a sudden short cold

spell, when we might expect considerable damage from this, the bees are stayed from the field, and they cluster under the frames and completely stop the under current, which saves the brood.

Now, our trips around occur every six or seven days during the spring flow; and at each visit storing room is added in the usual manner, the empty supers inserted next to the brood-chambers. At each visit we tip the hive-body from the super and glance over the brood-nest in both apartments, looking upon and between the combs, and perhaps separating them just a little, the object being to see if any preparations for swarming have been made. If any queen-cells have been started this quick examination reveals them. If there are cells we stop and go thru the hive and remove them. But we rarely have much of this to do, and but little time is lost in this way. We must make sure of it, however, so we have this little work of tipping up to do.

At this critical time the queen is occupying all comb in the hive-body, for nearly all the honey the bees had at the beginning is in the super, which allows the queen full access to all comb in the body. At the same time, she has more than twice occupied all comb not filled with honey in the super, and she has not lacked room. At the same time, this broad open entrance has kept the bees from contracting the swarming fever, because they have had to protect the brood in the super, during rain or sudden short cool spells, at which time they always contract the swarming fever if they are in closed-up close quarters, for they seem to have nothing else to do. With an open hive, with brood right at the bottom or almost in the open, conditions are right the reverse, and it seems to cure and keep them cured of swarming.

When the honey-flow is coming to a close, and the supers are nearly all filled, the super is removed from the bottom and placed on top of the body; and as the queen at this time is fast diminishing in egg-laying the bees will store some honey in it, the amount depending, of course, on the extent of the flow, and thus they have sufficient stores; and if there is not another great honey-flow expected, the super is left on top the remainder of the season. In it the bees will store the odds and ends of small or light honey-flows. This leaves them heavy with stores, and in the best possible condition for the coming season.

Suppose increase is wanted at any time. What is more ideal than the arrangement I have described? When the brood in the

super is nearly all capped and some emerging, just set it on a new stand and contract the entrance, making sure the queen is left with the colony on the old stand. At the same time give the new colony a ripe queen-cell, or, better, a queen; and when the little colony is ready, give it a body of ready-built comb or full sheets of foundation, and soon they are a normal colony in strength.

If a great amount of increase is desired, the strongest colonies should be given an extra super in the early spring, and the queen allowed to occupy both as early as

possible. Later, when some brood is emerging, use the best super for the increase.

This super is never used as a storing-receptacle by the bees as long as it remains *under* the body and it is quietly out of the way and well protected while left there.

Some might think that serious robbing might result in such wide-open hives; but such has not been my experience, for the colony has a good chance to ward them off, and at the same time a great swarm or army of robbers will not attack such a colony.

Cordele, Ga.

COMB HONEY IN A CALIFORNIA OUT-APIARY

BY C. T. AND M. B. WISE

We run two out-apiaries for comb honey. Our Kentucky Springs apiary (so named from the spring which furnishes water for the bees as well as ourselves) is situated about eight miles east of home, and is usually visited once a week during the working season. The trip is made in a buggy or light wagon, and it usually requires two days to attend to the work (100 colonies). We camp over night at this yard.

The other yard is two miles west from home, and is usually visited twice a week, making the round trip on the day of each visit.

As soon in the spring as the bees begin to crowd the brood-chamber a second hive-body is placed on the hive. In this second body should be placed all combs from the colony that are filled with honey, and the space so made in the lower hive filled with brood-frames containing full sheets of foundation or drawn combs. We get better results from using foundation on the stronger colonies, and usually reserve our extra drawn combs for use with the weaker colonies. Should the hive contain brood in all frames when the second body is added, put about half of the brood in the upper hive, proceeding as before. When foundation is used we get better results by putting the foundation together as much as possible, as the bees make better combs when several sheets of foundation are side by side than when they are alternated with drawn combs.

A week or two later both hives should be well filled with bees and brood. If they are not so filled at the next visit, leave them until they are full of bees, brood, and honey. We then place the combs containing the greater part of the honey and well-ripened brood in the top hive with one comb in the center of the hive that has eggs or very young larvæ suitable for rearing queens.

Now set the top hive to one side and put a *baited* comb-honey super on the lower hive and a second comb-honey super containing foundation upon that; next put a queen-excluder or a screen with a fly-hole two inches wide on the last comb-honey super (we get best results with the screen); place the top hive on this stack, and leave it for one week.

We then carry the upper hive to a new location and introduce a young queen if we have one. If we have no queen to introduce we leave them to raise one from the cells within their own hive. At the time of carrying off the top hive we examine the comb-honey supers before placed on the parent hive. If the bees have accepted them and gone to work we lift the baited super off, placing the one with the foundation beneath it, and put a third empty super on top. When the bees begin to work in their *third* super we put it at the bottom, and so continue thru the season.

Our seasons last, in favorable years, from May to September, and we sometimes have ten or more unfinished comb-honey supers on a hive.

After the bees are working in the third super we seldom find any inclination to swarm; but when we first carry the upper hive away the bees sometimes refuse to go into comb-honey supers, when we "begin at the beginning," and repeat the treatment. When handled by this method I do not believe we have more than one per cent of swarms ordinarily, but in 1915 we had 90 per cent of our bees to doctor for European foul brood, and endeavored to hold them strong for comb honey and requeen by rearing queens (by introducing cells) in the sick hive at the same time. As a result we lost about 15 per cent of prime swarms, as we judged by condition of the hives later.

Acton, Cal.

Heads of Grain from Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

Uncle Jeremiah Motherwort is doing a lot of worrying this spring. He read in the bee-book that extra-fancy sections were to be evenly filled and all combs firmly attached to the four sides. He says he don't know how he is going to hand the information over to the bees.

The Bee

Thou risest ere the rosy hands of morn
Have brushed the glowing dew-drops from
the thorn,

And on thy wings of frailest gossamer
Thou fliest far where rarest blossoms are.
Across the fields of clover dost thou pass,
Across the wild sweet flowers in the grass,
Across the apple orchards pink and white,
Across the garden riotously bright.
Thou gatherest from every bud and bloom,
And, in the hive's secluded, dusky gloom
Where thou hast fashioned with omniscient
art

The cells in whose design man had no part,
Thou blindest all the sweetness thou hast
brought

Into a harmony beyond man's thought.
Thou soon must die; but, oh thy great be-
quest,
Field, garden, wood, in one great thought
compressed!

Thou teachest man to draw the best earth
yields

Of wholesome wild and cultivated fields,
To blend all knowledge in a thought sublime,
And, dying, live in his bequest to time.

Brunswick, Ga.

Annie O'Connor.

The Fowls Method of Swarm Control.

I read the editorial, July 15, "A New-old Method of Swarm Control," inviting discussion relative to the Fowls plan, but I have seen nothing in Gleanings about it since.

Taking the hint from the first Fowls article I tried a few colonies last summer. The main objection I had to it, with my very limited trial, was that the queen did not get sufficient support during the time that treatment was in progress; in fact, none in some cases, which is not to the best interest of the colony.

There is no denying the fact that the old hive with combs and brood has a great attraction—in fact, more than the queen with one frame as mentioned in the plan and under new conditions that it makes. This attraction is stronger in some colonies than others. I remember once placing the queen with one frame of brood in a prepared hive, and setting it on old stand. I shook about half of the colony in front; put the rest of them on top with a wire separating-screen between, and gave a small back entrance. The bees practically abandoned the lower for the upper. It was a sight to see them string around to that small back entrance. Imagine the support this colony would have given the queen under the plan in question. If the queen gets little or no support, and is removed from the parent hive a distance of two supers or more, as advised, and she ceases laying, it then resolves into about the same condition as having her caged for the time, and the caging of the queen has been practiced and advocated as swarm prevention. Then in the end the plan means division, and division in any manner has a very marked effect on swarming, which is not questioned.

If the Demaree plan or its modifications (which these all are) has any advantage over the shaken-swarm plan relative to swarm control, the placing of the excluder, an obstruction to the free movement of the queen, and lack of support from her bees on account of attraction above, can lay a pretty strong claim for the difference. Of course, if, finally, division is made, it is an added factor.

Galena, Kan., Jan. 31. J. P. Brumfield.

[The Fowls plan was either so good that it required no discussion, or it was no good at all. We held that it is good. We would like to know who tried it and with what success. —Ed.]

"Water-soaked" Wax.

Some of my neighbors are having trouble in rendering wax from old black brood-combs. They melt the combs (with water) in five-gallon cans. Part of the wax crumbles and looks like cornmeal, and will not stick together.

Is there any simple way of making dark wax lighter-colored, without using sulphuric acid? I have tried vinegar on a small scale, but it did not seem to have any effect on the color. Perhaps I did not use enough vinegar.

Wm. Muth-Rasmussen.

Independence, Cal.

[The wax referred to is water-soaked. Beeswax, when it becomes mixed with water, assumes a crumbly, mealy consistency so that it is difficult to get it back into hard firm beeswax again. You can expel the water by using dry heat—that is, placing this mealy wax in a suitable dish and holding it over a slow fire until it melts. The water and wax will then separate and the wax will be hard.]

Water-soaked wax is a physical mixture of wax and water and not a chemical mixture; that is, the wax itself is not changed except in shape, being in small particles separated by thin films of water. After being kept a long time in the air this water will all evaporate, leaving the wax as a powdery substance bearing little resemblance to beeswax. This, however, can be brought to a firm condition by the dry heat above mentioned.

We do not know of any way that beeswax can be clarified on a small scale without an expenditure of an unwarranted amount of money. You can melt the wax, dip boards in it, peel the thin films of wax off the boards and expose them to the sunlight, and whiten the wax, then melt again and strain; but the additional amount that you could get for the wax in the clarified condition would not begin to pay you for your expense in bleaching. Furthermore, the bleached wax is not quite as ductile as that which is not bleached. We have never been very successful in experimenting with vinegar. Sulphuric acid is all right to carbonize the impurities, but we do not advise the use of this chemical except when one has access to steam and a properly built lead-lined vat or tank, and even then the acid should be used in extremely small quantities. The average person who attempts to clarify small amounts of beeswax with sulphuric acid uses ten, twenty, and sometimes even a hundred times too much acid. The wax is "killed" and almost ruined.—Ed.]

Surely "Penny Wise and Pound Foolish."

Not many beekeepers in Jamaica possess this useful machine. Year after year they extract the wax by boiling the comb and wringing it thru a bag. The result is, they lose about half their wax by this primitive method.

Not many weeks ago I called on a beekeeper, and in conversation he told me it scarcely paid for the trouble to melt up very old comb, as there was very little wax to be got out of it. On asking him what method he used to press the melted comb he said, "By wringing it thru a bag." He had melted up fifty supers of comb (500 frames), and

got only 50 lbs. of wax. I offered him four shillings for the refuse, which he accepted. On taking it home I boiled it with plenty of water and pressed it thru a steam wax-press. Pressing two gallons of the melted comb each time gives the best results. I also find by pouring about a quart of boiling water on the bag containing the melted comb each time it is turned for pressure is important. The boiling water softens the cocoons, and washes out the wax. After I had got thru with the melting and pressing of the refuse, the wax weighed 50 lbs.; at 13½ pence per lb., \$13.50—not a bad day's work. I earned nearly enough to buy friend M., who sold me the refuse, one of these useful machines.

F. A. Hooper.

Four Paths, Jamaica, B. W. I.

Hydrogen Peroxide to Cure Bee Paralysis.

Last fall my colonies were seriously depleted by the "whatever it is" disease. We were having fine weather, the bees working on asters one day and the next rolled out in front of the hives to die. They went into winter with no brood (October) and few bees, but all wintered. I have heard of others in this vicinity that rolled out thru the winter and died. Just before fruit-bloom we had three cold rainy days, at the end of which I found my bees rolling out over the ground, forming little clusters on dead weeds or sticks, some hopping over the grass, and some spotting or streaking up the front of hives, also the entrance-boards. I fed them—poured on top the frames and bees warm sugar syrup with two to three teaspoonfuls hydrogen peroxide to the pint, and controlled the disease, or think I did. The treatment was repeated two and three and four times a day for two days, and a pint can of the medicated syrup with cloth cover inverted over the frames and surrounded by packing. The third day there was only an occasional hopping bee, and they were busily working on the barberry hedge. Peroxide has been my standby in the poultry department. One teaspoonful poured down one sick hen generally cures her. As to the bees, not only do I not want to change queens because my own bees are more than satisfactory, but the plan doesn't look good to me. One could not be sure that the new queens are immune. Indeed, those colonies of my own suffering the severest last fall, had much the lightest attack this spring, and vice versa.

May G. Alley.

Pine Grove, W. Va., May 1.

[Bee paralysis and Isle of Wight disease seem to resist many kinds of medication. Reports have shown that bee paralysis, or what was like it in this country, has yielded in some cases by sprinkling powdered sulphur on the bees. As sulphur is a mild antiseptic it may have some curative value. In the same way hydrogen peroxide may be used also. As nearly every family keeps it on hand we suggest that it be tried out.—Ed.]

A. I. Root

OUR HOMES

Editor

Love ye your enemies; bless them that curse you; do good to them that hate you, and pray for them which despitefully use you, and persecute you.—MATT. 5:44.

Father, forgive them; for they know not what they do.—LUKE 23:34.

Behold the Lamb of God that taketh away the sin of the world.—JOHN 1:29.

If thine enemy be hungry, give him bread to eat; and if he be thirsty, give him water to drink; for thou shalt heap coals of fire upon his head, and the Lord shall reward thee.—PROV. 25:21, 22; ROM. 12:20.

In our issue for July 1, 1915, I inserted a clipping from the *Sunday-school Times*, headed "Getting Even." That little clipping has been of so much importance to a sinful world that I am sure our friends will excuse me if I give it once more right here:

GETTING EVEN.

To get even with one who has wronged us is to get down as low as he is. The more outrageous his injustice, the lower we shall have to go if we insist upon getting even with him. So "getting even" always leaves us worse off than we were before. If ever one man was unfairly treated by another, it was David, at the hands of jealous, unworthy, infuriated Saul. But when David's chance to get even came, he preferred to stay on the heights. To "revenge" ourselves is to return the sort of thing that was given to us. It is as tho, having been cheated by counterfeit money, we wait for an opportunity to pass some of the counterfeit back to the cheat. No matter what we have suffered, we cannot afford to do that; for then we have been injured twice; and the second injury is far worse than the first. There is a better way of getting even with one who, in order to harm us, has descended to a low level. It is to stay above him in God's company, and by love to bring him up to that level.

My reason for presenting it a second time is because of something that more powerfully illustrates the admonition to return good for evil than anything, so far as I can recall, that has ever come to my attention. It is also a clipping from the *Sunday-school Times* in regard to a great missionary, and reads as follows:

What a great, burly, bewhiskered silent man he is! He will weigh over two hundred and fifty pounds. Once he and his wife were put in the stocks and beaten with the Russian scourge. When the beating was over he was unconscious and his wife was dead. He inquired from what section the Cossacks had come who had beaten him and murdered his wife, and he journeyed to their section; that was five years ago, and he has since baptized eleven hundred of them. And they were converted, too, and gloriously so; for each one of these more than eleven hundred have put their property and lives in jeopardy by professing faith in Christ and by being baptized in his name. Is not this a present-day example of the grace of God that came by the Lord Jesus Christ?—*Baptist World*, Louisville, Ky.

There you have it, friends. If the above is not "getting even" with a vengeance, then I do not know. It is really too bad

that the *Baptist World* did not give the name of this saintlike missionary. He was not only beaten, like God's veteran apostle Paul (and probably left for dead), but his poor wife was killed outright. We have been told the American Indian never forgets an injury. Well, suppose this missionary, after he recovered, had spent five years of his life in killing Cossacks; and suppose he had succeeded in killing, say, eleven hundred. I am quite sure the great wide world would have smiled when it heard of it, and said, "He pretty well balanced the account." But the poor fellow had different ideas of revenge. He first inquired in regard to what section of the Cossacks had done this great injury. Then deliberately, quietly, and prayerfully, he set about getting his revenge—that is, getting what might be called revenge. But his ideas of revenge were along the line of the beautiful texts I have quoted—"Do good to them that hate you; bless them that curse you, and pray for them that despitefully use you." We have heard about heaping coals of fire on one's head; and our mothers and teachers have explained to us that the "coals of fire" represent good deeds. Probably those very Cossacks that committed that atrocious crime were ignorant, like our poor brothers in Mexico, for instance. They did not understand this missionary. They thought that he and his good wife were enemies. Quietly, but with a strong determination in his heart to win them to Christ, he went to work, and, probably to his great surprise, he found these poor people ready to receive God's precious word; and in only five years he baptized eleven hundred. We are not told that he succeeded in laying up treasures on earth; but, oh dear me! what a "heap" of treasure he laid up for himself "in heaven"! Eleven hundred precious souls singing praises and thanksgiving to him for having led them out of heathen darkness into the light of the gospel!

The above has been added to our little tract about the defeat of injustice, etc.; and may God speed the message. Let me digress a little:

A good lot of people, both men and women, when they are getting old like myself (past threescore and ten), are tempted at times to think their work is done—that the great responsibilities of the present age will have to rest on younger shoulders. Did you ever feel that way, my aged friend? Very likely you have. Well, up in Michigan there is a lady (I think she said she is over

eighty years old) who cannot get about very well, but who can distribute tracts, and she has been making excellent use of the little tract I have mentioned—"The Defeat of Injustice." Here are the closing words of one of her letters:

I have thought it best not to watch for fruits, like Jonah; but if I am working the will of my heavenly Father, and it is acceptable to him, if I do not *see* results or people—yes, people who make a high profession do not seem to approve and encourage, as might be expected of them—I try not to be disheartened. I left the word "discouraged" out of my vocabulary long ago. I do not use the word at all except to *tell others* to leave it out.

Ypsilanti, Mich. RHODA C. W. DERBYSHIRE.

What do you think of that, friends, young and old? The word "discouraged" is left out of her vocabulary. Is not that an exhibition of faith? Well, after getting several hundred of my tracts, and seeing them bear fruit, she sent me one of *her* tracts. I think you will read it all when you get a glimpse of the title, and then you will smile as you go on.

WAR ON CHRISTIAN PRINCIPLES.

One of the conditions of the treaty with Mexico, it is said, that in any future war which may break out between the two countries shall be conducted on Christian principles.

Now, we all know that this is an age of progress, and that all sorts of improvements are constantly taking place in all sorts of matters; but war on Christian principles is certainly the latest, and if it be carried out we think it will prove the greatest of them all.

Just imagine it! We think we can see the two armies drawn out in battle array. A fair field is before them, the ranks are formed, the positions are taken, the great guns unlimbered. General Scott is just about to give the order to fire, when an aide comes up and respectfully reminds him that "the war is to be conducted on Christian principles," and that it will not do to fire.

"Very true, very true," says the commander-in-chief, "but what are they? I have read Vauban and Scheiter and Turenne and Coehorn. I have read the lives of the old conquerors, and have studied the campaigns of the greatest soldiers; but I never happened to come across these principles in any work upon the military art. Do you know anything about it, Colonel?"

"No."

"Nor you, Major?"

"Nor I either."

"I really don't know how to begin. I suppose it would not do to shoot. Suppose we send for the Chaplain."

The Chaplain arrives.

"Do you know anything about this fighting on Christian principles?"

"Oh, yes! it is the easiest thing in the world."

"Where are the books?"

"Here."

And the Chaplain takes out the Bible.

"Really," says the General, "we ought to have thought of this before. It is a bad time to commence the study of tactics when the enemy is right before us; but I suppose we are bound by the treaty. What is the first thing, Mr. Chaplain?"

"Thou shalt not kill. Thou shalt love thy neighbor as thyself."

"But these are not neighbors. They are Mexicans."

"The same book tells us, a little further on, that the opportunity to do good to a man makes him one's neighbor."

"Will you go on, Mr. Chaplain?"

"Love your enemies. Do good to them that hate you. Pray for them that spitefully use you. If a man smite you on one cheek, turn to him the other."

"But while we are praying for the Mexicans, they will be firing into us."

"No, they are bound by the treaty also. It works both ways."

"Then what is the use of our arms?"

"This is all provided for in the same book. Beat your swords into plowshares and your spears into pruning-hooks."

"Then I don't see that there is anything for us to do here."

"Nothing, unless you send over and ask Santa Ana if he needs anything in the way of medicines or provisions or clothing. I rather think the treaty requires this of us."

"And I don't know but we ought to send them a few schoolmasters, for I understand that they are shockingly ignorant people."

"But how do you ever know which party conquers in this fighting on Christian principles?"

"That is the great beauty of it. Both sides conquer, and there are never any killed or wounded."

I presume this good woman will furnish you as many as you want of the above, free of charge. If you wish to send her some stamps or something more, I am sure it will be all right, because I think she told me she had but little means.

Let me now give you another illustration from my own experience. It was given in GLEANINGS years ago, but it will be new to most of our readers, probably, of the present day.

At the time of my conversion, something like forty years ago, I was, I am sorry to say, in pretty close touch with several prominent skeptics. After my conversion a difficulty or controversy had arisen between myself and the editor of our county paper. No doubt I was more or less at fault, because I was new in Christian work. He seemed to feel bitter toward me because I deserted their ranks and started to follow, as best I could, our Lord and Savior. I tried in my humble way to return good for evil; but it seemed to provoke him all the more. In fact, in his position as postmaster of our town he succeeded in having GLEANINGS thrown out of the mails—that is, he made such a representation of it at Washington that I received notice it could not be mailed at journal rates. I shall always remember how he looked as I met him on the street one morning. Taking his cigar out of his mouth, and puffing a cloud of smoke up toward the blue sky, he said:

"Mr. Root, I think now you will have to buy a lot of postage-stamps."

There was a twinkle in his eye as he said it. I do not know how it is now; but at that time the postmaster had a percentage

on the number of stamps he sold. I need not take time to tell you that, in answer to my little prayer, "Lord, help!" before it was time for the next issue of our journal to come out, a message came from Washington that GLEANINGS had been reinstated. At different times he tried to do me injury; and when the report came out in the papers that the great yields of honey I had been bragging about were produced by feeding glucose, he, it seemed to me, made it harder for me to prove my innocence of the charge. Things went on in this way for years. As our industry developed, and we were sending so much stuff by mail, in the course of time there was talk of increasing the salary of our Medina postmaster; and as the Department ascertained that our establishment was furnishing the great bulk of the mail business to our town I was appealed to, and I think I was also asked if I would recommend the present postmaster and ask for a corresponding increase in salary. In other words, had the postmaster in the past worked in harmony with our business in sending goods all over the world? At this crisis it was a little humiliating for my old enemy (if I may call him such) to come to me and ask a favor. As nearly as I can remember, his words were something like this:

"Mr. Root, there is no longer any need that you and I should be at swords' points as we have been in the past. If we turn about I can help you and you can help me; and I greatly need this increase in salary; and I assure you I will do the best I can to accommodate you in every way in your great and growing business."

I did not answer right away. Here was a grand opportunity for "paying back" or "getting even." Past things that I had patiently and uncomplainingly suffered came up before me. Satan suggested I should tell the postmaster that I preferred to recommend somebody else for his office. Then, again, that expression of his, "swords' points," came up. These "points" were all on his side, for God knows I had, year in and year out, *tried* to "do good to those that hate you." I do not think it took me very long to decide, however, that here, at last, was a chance to heap some coals of fire. I smiled, and looked him pleasantly and squarely in the face and said something as follows:

"Mr. —, I for one shall be very glad to have pleasanter relations between you and me than they have been in years past."

Then I signed the papers. From that time on there were no more clips in regard to A. I. Root and his fanatical methods;

and my good friend was, I think, a little less bitter toward the Bible and Christianity. Later on, his health failed; and finally there came a message that he had not many hours to live, and he wanted to see me. Imagine my joy and surprise to hear him say he had been reading his Bible, and had accepted his Savior as the Lamb of God that taketh away the sin of the world.

Now, dear friends, please do not think I am boasting when I say that this man was saved, not by what I *said* to him, but by the way in which I had succeeded (in my poor humble way) in illustrating the truths of the gospel I was trying to spread abroad to all men. It was my *action*, the way in which I *deported* myself under fire, that recommended the dear Savior, and not what I had said.

And now in closing let me say to you, dear friends, whose eyes rest on these pages, that you can do a greater work, perhaps, by your acts and daily conduct than by anything you can say. Let the whole world see that you are ready and on the alert to love your enemies and to "do good to them that hate you."

Let me close with still *another* clipping from our good friend Ridgeway, in the *Sunday-school Times*:

There is nothing better to be said of a citizen and neighbor than that he was a good man. Not great, not learned, not able, not rich, but *good*. Greatness falls, learning rusts, ability wanes, riches fly, but goodness goes on forever. The good man is, first of all, a God man. Good and God are words with the same mother. The good man is kindly, generous, helpful, thoughtful. When he speaks and promises, no one asks a writing. Such men are the regular standard output of those manufactories called Sunday-schools.

"CAST THY BREAD UPON THE WATERS, FOR THOU SHALT FIND IT AFTER MANY DAYS."

The letter given below was one of my "happy surprises," and it brought to mind the beautiful little text I have chosen for the head of this article.

A KIND WORD FROM C. G. TRUMBULL, EDITOR OF THE SUNDAY-SCHOOL TIMES.

My dear Mr. Root:—Last week I returned from a western trip, having the privilege of speaking at a dozen meetings in Kansas, Nebraska, and Iowa, on the subject of the Victorious Life—victory by faith in Christ.

On my way home I was breakfasting one morning in a railroad station, and my appetite was appealed to by the mention of an article on the menu served with "strained honey." I ordered it; and as I was eating the honey I wondered idly whether there was any real honey in it, or whether it was simply a manufactured and artificial product, of which we are told there are so many masquerading under natural names these days. It tasted all right; but I was rather inclined to think it was being "put across" on me, and I picked up the little "individual service" bottle containing the honey, and glance-

ed carelessly at the label. I didn't notice the whole label closely, and set the bottle down again.

I enjoyed my honey, whether real or not, however; and a few minutes later I looked at the label again, this time more closely. Imagine my surprise and delight as I saw printed across the bottom of the label, "A. I. Root, Medina, Ohio."

"There's no counterfeit there, if A. I. Root's name is on it," said I to myself; and I felt as tho I had run across an old and a warm friend on my journey. Instantly I recognized that I had before me the *real* thing, from a man who was a *real* man because Christ is in his life.

I just wanted to pass on this bit of travel experience to you, and to thank you for having made my breakfast more enjoyable. You have brought honey into my life over and over again by your wonderfully appreciative and encouraging words about the *Sunday School Times*.

With warm and grateful greetings, believe me,

Yours in His faithfulness,

Philadelphia, Pa., May 15. C. G. TRUMBULL.

The above suggests several things—first, that the dining-room menu still persists in saying "strained honey." It has been something like fifty years since I helped to give the world the honey-extractor, which enables us to get the honey out of the combs in a much better and purer form than squeezing or straining it out. Secondly, our good friend Trumbull, with a great lot of other people, does not seem to recognize that our pure-food laws have for several years past pretty much done away with the adulteration of honey as well as other things. There is quite a penalty imposed for adding glucose or any other similar substance to liquid honey, and I believe the law is pretty well enforced. I hardly think a spurious article can be found now in our groceries nor in the drugstores of the United States. No doubt my good friend Trumbull has paid me a higher compliment than I deserve; but I decided to let it go in print because it so well illustrates that any man or woman who persistently *tries* to be honest and to do right before God and man, year in and year out, will ultimately get the promised reward. The bread cast on the waters will not be lost.

SUNDAY'S EVANGELISTIC WORK IN BALTIMORE.

In the Home paper in our issue for Feb. 1 I said nothing would save Baltimore except a visitation of the Holy Spirit, and that I finally knelt down and prayed that the Lord might call Billy Sunday to that terribly wicked city; and I learned afterward that he had already arranged to go there. I have space to give only a brief statement in regard to the result. The *Baltimore American* for April 24 has quite an article in regard to the last day in the great tabernacle. A large number of converts, about 23,000, were gained, which, if

I am correct, exceeds all former records, according to the size of the city. It is a wonderful achievement. It comes pretty close to being one in 25 of the whole population. While he was preaching his closing sermon to a vast audience of the people, *another* meeting was held, and addressed by Charles A. Windle and Jacob E. Meeker. These two great defenders of the liquor business of course had no end of fault to find in regard to the harm that Sunday's earnest preaching had done to the "booze business." Over a million and a half people listened from first to last to Sunday's preaching in Baltimore. At the farewell sermon 914 came forward.

After the above was in type I found the following in the *American Issue*:

On the closing day of the Billy Sunday campaign in Baltimore, the evangelist talked to 100,000 people, and the leading newspaper of the city the next morning gave 18 columns of space to the tabernacle meeting. On the same Sunday both Windle and Meeker spoke at a meeting in Baltimore to about 2000 people, and the same paper gave the wet meeting a half-column space.

This shows how the people of Baltimore felt about the Sunday meetings in comparison with the meeting held by the wets.

LEARNING TO SWIM.

Again and again are we confronted with a newspaper clipping telling of boys and girls being drowned who might easily have saved themselves if they had been able to swim but a little. A person who cannot swim, if thrown into the water where he comes within a foot of reaching a support may drown helplessly because he is unable to move his body just that one foot. In fact, I myself would not be here writing these notes were it not that I had just a little practice in the art of swimming sixty years ago. I was vividly reminded of it by the following from the *Plain Dealer*:

TEACH PUPILS TO SWIM; CHICAGO EDUCATORS URGE COURSE BE ADDED TO CURRICULUM.

CHICAGO, Aug. 13.—Members of the committee on buildings and grounds of the board of education to-day adopted a resolution recommending the teaching of swimming in every public school.

A special committee, of which Mrs. Ella Flagg Young, superintendent of schools, is chairman, was appointed to work out the practical details of the plan.

It is estimated it will cost the city about \$1,000,000 a year to add swimming to the curriculum in every school. The steamer *Eastland* disaster led to a consideration of the subject by the committee.

No matter if it does cost a million dollars a year or more to teach our children to swim as well as to read, write, and spell, let the good work go on: and I am especially pleased to note that the capable and talented woman mentioned in the above is to have charge of the matter.

TEMPERANCE

"BOOZE" ADVERTISEMENTS IN OUR CITY
DAILIES, ETC.

We clip the following from the *Ohio Farmer* for May 13:

A report just issued by the Bureau of Chemistry, United States Department of Agriculture, covering food-law cases judged since April 20, 1915, lists over 60 patent medicines as misbranded and fraudulent in that their analyses prove that they contain no elements to effect the cures or relief that their labels claim. The list includes baby soothing-syrups, which are pronounced positively dangerous on account of the opiates and alcohol that they contain; and, furthermore, in the words of the government decisions, the label claims are "false and fraudulent in that they are applied to the said articles knowingly, and in reckless and wanton disregard of their truth." This is the season when many people's minds dwell on taking "spring tonics" and "bitters" as relief for the lassitude resulting from diets unsuitable for the warmer weather. True, we do need the tonic to be obtained in the mineral salts of herbs and fruits, but it is far wiser and more effective, and also much cheaper, to get it in fresh green herbs and such fresh fruits as are obtainable now. A daily "mess o' greens"—we had a most appetizing dish of dandelion greens for dinner yesterday—will do you far more good than any of the "bitters," tonics, and nerve remedies advertised so liberally in your local newspaper. Whatever herbal efficiency there is in these is usually so doped with alcohol that the harm done outweighs the good that the herbs alone could do. Therefore it is far better for your health and your purse to take your "yarbs" and your iron, potash, lime, and sulphur first hand and directly in the fresh green vegetables, fruits, eggs, and milk. Spinach, dandelion greens, and raw cabbage are much more effective sources of iron than any beef, wine, and iron compounded in a bottle from the drugstore.

Just a word about dandelions before we take up the matter of liquor advertisements. I am glad to see a good word for dandelions, especially since so many people talk about dandelions as they did a few years ago about sweet clover. Dandelions are not only a splendid crop to plow under to enrich the ground, but they are excellent cow feed. When you find a cow that will not eat dandelions you may make up your mind that her education is lacking, just in the same way you decide the education of an editor is lacking when he gives place in his columns to booze advertisements.

Now in regard to fraudulent medicines. We are informed there is a law against palming off on the public misbranded bottles with an exaggerated statement as to the virtue of the contents; or, worse still, selling something that is not a remedy at all for the trouble specified. And, by the way, it rejoices my heart as I go over the agricultural periodicals sent out from our different states to notice the splendid sentiment coming from the different editors in regard to everything harmful to the inmates of the homes on the farm. May God be

praised for our splendid agricultural periodicals. There are few of any kind nowadays, except our great city dailies, that will accept any sort of booze advertising. In our issue for Feb. 1 I said I had been pained because our neighboring city of Cleveland seemed to be the only large city that did not contain a daily having the courage to say that no more whisky advertisements would be found in their columns. If I am making a mistake, please correct me. It is true, however, that our old *Plain Dealer*, sometimes for a week or ten days, will have no whisky or beer advertising whatever; but just when I begin to rejoice, then comes something like what I saw a few days ago—a booze advertisement that had the cheek to claim their beer was "liquid bread." One of the great dailies, if not the greatest in the large city of New Orleans, has just stepped over on the dry side. See the following from the *American Issue*:

It is announced that the *Times-Picayune*, of New Orleans, which heretofore advertised liquors, is to join the ranks of newspapers which refuse such advertisements.

But here comes something from our beloved Florida that does not call for rejoicing. I clip it also from the *American Issue*:

THE "GREATEST OFFER EVER MADE."

Who says that the liquor-dealer is always lacking in a sense of the eternal fitness of things? In support of the contention that he occasionally is consistent we cite an advertisement which appeared recently in a Florida newspaper (the *East Coast Advocate*, Titusville), in which the "greatest offer ever made" is set forth. This offer consists of a box of 50 cigars, with a claimed value of 7½ cents each, for \$3.48, and with each purchase will be given a premium of one quart of whisky and a revolver. The cigars are evidently a mere incident. But what could be more consistent than a bottle of whisky and a revolver?

When one reads the above he is tempted to wonder if it is possible a periodical could be found *anywhere* whose editor is so far behind the times that he would accept such an advertisement. The bottle of whisky with the cigars *might*, in one sense, be consistent; but why in the world should the revolver be put in? Is it the hope or expectation that, after the purchaser has drunk the whisky, he will shoot his wife or children, and then in his drunken craze use the revolver on himself? Do we need any *more tragedies* along that line than we have already? By the way, is there no law, either in Florida or in the United States that will put a stop to such kind of advertising as well as that sort of gift or prizes offered as premiums? Instead of sending mission-

aries to the heathen, why not open up a crusade to educate some of our country editors?

THE DRUNKEN CHAUFFEUR, THE MAN WHO SOLD HIM THE DRINK, AND THE JOURNAL THAT ADVERTISED THE DRINK.

We clip the following from the *American Issue*:

WHO ARE THE GUILTY PARTIES?

A drunken man in Detroit was driving an automobile and ran over a man, killing him. The driver was arrested, convicted, and sent to the penitentiary for 15 years. The fact that he was drunk when the accident occurred did not save the man from punishment.

The *Ohio State Journal*, commenting on the case editorially, says: "For a man who is drunk to run a car is an offense itself; and when he happens to kill a man, the offense naturally intensifies the crime. If there is anything the law should punish severely, it is where a drunken man undertakes a run in an automobile."

But what about the men who made and sold the liquor which made the man drunk and caused the killing? Are these men guiltless?

And what about the newspaper that in its advertising columns urges men to drink? In the same number of the *Ohio State Journal* in which the editorial appears is an advertisement to the effect that a certain brand of liquor is "worthy of a place in the best of society, is good for young and old, and is a good tonic of high value."

In the same paper of the same date another brand of liquor is proclaimed to be a "spring tonic, a delicious drink, and an ideal thirst quencher."

Probably the drunken automobile driver who killed the man had been reading these advertisements.

Is the drunken automobile driver the only guilty party?

What does the *Ohio State Journal* think about it?

I hope the above will be read over and over, not only by drinking men, but by those who vote for drinking men; those who vote wet, and the editors of the periodicals that accept wet advertising.

PROHIBITION DOES NOT CONFISCATE PROPERTY, AFTER ALL.

We take pleasure in clipping the following from the *Methodist Temperance Bulletin*:

SALOONS AND BREWERIES TURN TO LEGITIMATE BUSINESS.

"Hydes," the finest saloon of Seattle, has been remodelled as a tea-room, with beautiful decorations, oriental furnishings, and comfort conveniences. Hundreds of Seattle's leading women are its patrons.

Prohibition does not confiscate property, but merely forbids its misuse.

The Raymann Brewery, of Wheeling, West Virginia, is now the P. O. Raymann Company, engaged in meat packing.

The Uneeda Brewery, of West Virginia, is now a milk-produce company.

The Benwood Brewery (West Virginia) is now a chemical and soap plant.

The Fairmount Brewery (West Virginia) is now an ice and milk products plant.

The Huntington Brewery is now a meat-packing plant.

The Cedar Rapids Brewery is now a yeast-factory.

The Iowa City Brewery is now a creamery and produce company.

The Star Brewing Company, of Washington, Pennsylvania, is now the Capital Paint, Oil, and Varnish Company.

The North Yakima Brewing Company, of Washington, is now a fruit by-products company.

The Salem, Oregon, Brewery, is now making logan-berry juice.

"PREPAREDNESS," NOT AGAINST AN IMAGINARY FOE, BUT AGAINST A REAL ONE.

We learn from the *Patriot Phalanx* that Gen. Nelson A. Miles, in his speech in Washington, D. C., said:

The proper "preparedness" should be, not against an imaginary foe, but against the ever present enemy that is destroying more American men and women and homes than any foreign foe could ever do.

Can't a lot of us say amen to the good old general's declaration?

GOD'S KINGDOM COMING IN SOUTH DAKOTA.

We clip the following from an article in the *New Republic*:

MITCHELL, S. D., April 21.—The greatest dry victory ever won in South Dakota was achieved last Tuesday when a score of towns and cities now wet swung into the dry column, and every dry town remained dry. . . . Three cities not only refused to go back to the saloon system, but increased their dry majorities of a year ago—Aberdeen from 4 to 66; Mitchell from 102 to 240; Rapid City from 43 to 134.

"THE MILD AND UNASSUMING CIGARETTE."

We clip the following from an article in *Plain Dealer*:

ATTENTION, HENRY FORD; AMERICANS THIS YEAR PROBABLY WILL SMOKE 21,000,000,000 CIGARETTES.

NEW YORK, May 11.—Bitter news for the Carrie Nations of this land is contained in a report compiled by the Wall Street *Journal* and made public today. It concerns the mild and unassuming cigarette of which so many harsh words have been said by well-meaning persons.

The report shows that if American smokers continue using cigarettes thru the year at the rate they have for the first three months the total consumption for 1916 will be well over 21,000,000,000.

The increase in consumption for the first three months of 1916 in the United States and Kansas over the same period in 1915 is 1,484,000,000. The total consumption last year was 18,000,000,000.

Our nation is just now making a big war, and, by the way, in many respects a troublesome war, on habit-forming drugs. All things considered, is there a *worse* "habit-forming drug" at the present time than the cigarette? Let our nation (and every other nation, for that matter) answer. Are we to understand from the above that the *Plain Dealer* considers cigarettes "mild and unassuming"? and also that Ford and Carrie Nation and other people who stand with them on the cigarette business are only half-crazy fanatics?

BUY THE BEST

Why buy inferior queens when the best can be bought at the same price? You have heard of Dr. C. C. Miller's famous honey-gathering stock. How would YOU like to have a strain of bees like his? You CAN have. LISTEN, and we will tell you how. We have made arrangements with Dr. Miller to furnish us breeders from his stock that has produced 266 sections weighing 244 pounds. These breeders are FINE. They are pure three-banded Italians, very gentle, and produce fine large daughters. Few people ever have a chance at the best in the world—so grasp this chance while you have it.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller, Marengo, Ill., March 1, '16.

Untested, \$1.00; tested, \$2.00; Select Tested, \$3.50; breeders, \$5.00 to \$10.00 each; virgins, 50 cts. each; 12 for \$5; 25 for \$10.
3-frame nuclei.....\$3.25
2-frame nuclei.....2.25
1-frame nuclei.....1.25

Colony in 8-fr. hive, \$6.00; 10-fr. hive, \$7.00.
Prices of colonies, nuclei, and pound packages do not include queens.

	1	10
½ pound bees.....	\$1.00	\$ 8.00
1 pound bees.....	1.50	13.50
2 pound bees.....	2.50	23.50
3 pound bees.....	3.50	33.50
5 pound bees.....	5.50	53.50

Queens of Our Strain.—Virgins, 25 cts.; untested, 75 cts.; 12 for \$8.00; 25 or more, 60 cts. Tested, \$1.25; 12 for \$13.50. Select tested, \$1.75 each.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

SAFETY FIRST! You are always safe in buying Murry's queens. Unexcelled for prolificness, gentleness, and honey-gathering qualities. No disease. Health certificate with each shipment.

Three-banded Italians	May 1 to Nov. 1		
Goldens	1	6	12
Untested	\$.75	\$4.00	\$ 7.50
Tested	1.25	6.50	12.00
Select tested	1.50	8.00	15.00

H. D. MURRY,
MATHIS, TEXAS

Untested queens per 100, \$62.50.
I keep from 400 to 500 queens on hand, and ship by return mail.

BEE-LINE QUEENS GOLDEN AND THREE-BANDED ITALIANS

From Caraway's prize-winning stock. Every queen purchased of me I will guarantee to give satisfaction. If she does not I will replace her with another queen or refund your money. They are hustlers, long lived, not inclined to build burr-comb, cap their honey white, and are not given to swarming, and are gentle to work with.

My bees and queens are winners of over 100 first premiums in the past eight years. This speaks for itself. If you are going to buy queens you cannot do better than buy the Bee-Line Queens.

Queens are postpaid, and safe arrival is guaranteed to all points in United States and Canada. No diseases of any kind in my apiaries.

State inspector's health certificate with each shipment.

PRICES FROM MAY 10 TO NOV. 1.

Italian Queens: Untested...one for 75 cts.;...six for \$4.00;...twelve for \$ 7.75
Tested one for \$1.00;...six for \$5.00;...twelve for \$10.00 || Select Tested | one for \$1.50;...six for \$9.00;...twelve for \$17.50 |
| Untested by the 100; May, \$70.00; June to November, \$65.00. | |
| Breeding queens. Fair, \$5.00. Extra select, \$10.00. | |

One-pound packages of bees:...One for \$1.50...six for \$ 8.50...twelve for \$16.00
Two-pound packages of bees:...One for \$2.50...six for \$15.00...twelve for \$29.50

These prices are without queens. Safe arrival guaranteed on bees by the pound when they are not over six days in transit. No orders filled unless cash is sent with order. Prices quoted on large lots for bees by the pound, also fr. nuclei.

B. M. CARAWAY . Bee-line Apiaries . MATHIS, TEXAS
Reference: Mathis First State Bank, Mathis, Texas.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei . . .	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei . . .	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies . .	6.00	30.00		5.00	25.00	
10-frame colonies .	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees . . .	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, tested tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

THREE - BAND ITALIAN QUEENS

They are bred from imported mothers. They are the best for honey-producing purpose; very gentle, not inclined to swarm. If you buy once you will buy always. GUARANTEE that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

Untested, . . . April 1 to July 1, 1, \$0.75; 6, \$4.25; 12, \$8.00
Select Untested, " " 1, .90; 6, 5.00; 12, 9.00
Tested, " " 1, 1.25; 6, 7.00; 12, 13.00
Select tested, " " 1, 2.00; 6, 11.00; 12, 20.00

L. L. Forehand, Fort Deposit, Alabama

Italian Queens

with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, . . Delphos, Ohio

Three-band Italians

Honey-gatherers at the following prices.

Untested, warranted purely mated queens, \$1.00

Tested 1.25

3-frame nucleus and untested queen . . . 3.50

2-frame nucleus and untested queen . . . 2.50

8-frame colony and untested queen . . . 7.00

(Colonies shipped in a new hive.)

Tested queens in colonies or nuclei, 50c more. No disease. State inspected. Shipment after June 20.

E. A. LEFFINGWELL, ALLEN, MICHIGAN

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Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

Queens of MOORE'S
STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for
honey-gathering, hardiness, gentleness, etc.
Untested queens, \$1.00; six, \$5.00; 12, \$9.00.
Select untested, \$1.25; six, \$6.00; 12, \$11.00.
Safe arrival and satisfaction guaranteed.
Circular free.

J. P. MOORE,
Route 1, MORGAN, KY.

Queen-breeder

If you need supplies or bees shipped promptly
write us. Our stock is complete, no delays.
Chaff and single-walled hives. Bees by the
pound, nucleus, or full colonies. Untested queens, \$1.00;
tested, \$1.25. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.

St. Regis Raspberry Bears from
June until
November.
Begins bearing same season planted. Colored plate and cata-
log giving full description sent on application. 1200 acres
fruit plants and seeds. W. N. SCARFF, New Carlisle, O.

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Mouth are Near
Together

To see birds, hear their
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are a happy trio.

There is a new and enlarged
Bird Department
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Guide to Nature

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THREE-BAND ITALIANS, BRED FOR
HONEY AND GENTLENESS, FROM
IMPORTED STOCK

	1	6	12
Untested	\$0.75	\$4.25	\$8.00
Select untested	1.00	4.75	9.00
Tested	1.50	8.75	17.00
Breeders, \$3.00 to \$5.00.			

Bees in 1-lb. packages, \$1.25, without
queen; if queen is wanted, add price.
Every queen PURELY mated; safe deliv-
ery and perfect satisfaction guaranteed.

N. Forehand, Fort Deposit, Ala.

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urally gravitate to Zanesville, the
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experience, and painstaking care in
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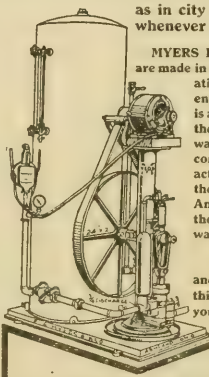
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You are tired carrying water and want to know more about this modern way, and how easily you can now have a successful private water system in your own home. Our Catalog will tell you. Write for it.

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Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	- - -	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	- - -	1.75
Tested	- - -	2.50
Select Tested	- - -	3.50

Delivery will begin about June 1.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio



ITALIAN QUEENS

Three-banded

From June 1 to November 1

Only 75 cts. each; 6, \$4.00; 12, \$7.50; tested, \$1.00; 6, \$5.00; 12, \$9.00; of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Send for my free circular and price list.

JOHN G. MILLER, CORPUS CHRISTI, TEXAS
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Italian Queens --- Three-banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$2.00 each; \$20.00 per dozen. Breeding queens, \$5.00 each. Special prices on large orders. Our customers must be pleased. Safe arrival guaranteed. Send check with orders to

J. W. Taylor & Son, Beeville, Bee Co., Texas

Prices on nuclei on request.

BEE SUPPLIES

Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Amber honey, 7 cts. per lb. Sample, 10 cts. C. R. ALLEN, Vicksburg, Miss.

FOR SALE.—Buckwheat honey at 7 cts. in new 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

RASPBERRY HONEY.—Thick, rich, and delicious, put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMAYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less car lots. J. E. HARRIS, Morristown, Tenn.

WANTED.—To buy a quantity of dark or amber baking honey. State price, and source gathered from. A. G. WOODMAN, Grand Rapids, Mich.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—Good honey-cases, two 60-lb. each, at 20 cts. a case. D. H. WELCH, Racine, Wis.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

EASTERN MICHIGAN beekeepers especially are invited to send for my catalog of Root's goods and specialties. Try me for satisfactory goods, prices, service. ARTHUR RATTRAY, Almont, Mich.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

Bee supplies at very attractive prices, including hive-bodies, supers, honey-boards, foundation, cans, extractor, etc. Enclose stamp for list and prices. MRS. M. M. FORBES, Plainwell, Mich.

FOR SALE.—70 ten-frame L. bodies, 60 N section-supers, with frames and fences; 40 Danz. bottoms; 35 R covers, all 10-frame; 600 brood-frames; 50 lbs. brood foundation. J. L. ZENNER, 1711 Fillmore Ave., Buffalo, N. Y.

FOR SALE.—Medium-brood foundation, 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash; 27 trade. J. F. ARCHDEKIN, Bordlonville, La.

COMB FOUNDATION for sale. Medium brood in 5-lb. lots, 45 cts. per lb. Thin surplus, 55 cts. per lb. Send on your wax and old comb for all there is in it. J. J. ANGUS, Foundation Factory, Grand Haven, Mich.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea! Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

POULTRY

Some farmers in this locality have pure-bred eggs; 50 cts. for 15. Write FRED SALZMAN, Bedford, Ill.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize winners. Eggs for hatching, \$1.00 for 13; \$2.00 for 30. E. B. BROWN, box 323, White Plains, N. Y.

WANTS AND EXCHANGES

WANTED.—Second-hand extractor cheap; any description. J. LIDDINGTON, 55 Charles St., Ilion, N. Y.

AUTOMOBILE.—20-horse-power roadster, just overhauled, new piston rings and new gears, to exchange for bees. Care of THE A. I. Root Co., 915 Walnut St., Des Moines, Ia.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

FOR SALE.—A 36-acre ranch, free irrigation water, five-room house, honey-house, and out-buildings, all practically new; good home orchard; 200 to 500 colonies of bees; two good locations. Time on part, for Sept. 15th delivery. J. G. PUETT, Collbran, Colo.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. SEAGRAVES, Gen. Colonization Agent A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

Try my MAPLEWOOD queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

FOR SALE.—Full colonies Italian bees, Root 10-fr. hives, \$5 each. L. H. ROBEY, Worthington, W. Va.

Three-band Italian queens, \$1 each; \$9 a dozen. EDITH M. PHELPS, Binghamton, East End, N. Y.

FOR SALE.—Full colonies Italian bees, Root 10-fr. hives, \$5 each. L. H. ROBEY, Worthington, W. Va.

Five three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

Rhode Island Northern-bred Italian queens, \$1. Circular. O. E. TULIP, Arlington, R. I.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Mt. Hamilton Apiary, Italian Queens. Untested, 75 cts.; tested, \$1.50 and up. CHARLES WOELH, 360 N. Lincoln Ave., San Jose, Cal.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. RAHN BEE AND HONEY CO., Haileybury, Ont.

FOR SALE.—We offer to some one in this or near-by state, 50 to 300 colonies, 8-frame, first class. THE E. F. ATWATER CO., Meridian, Ida.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Northern-bred Italian queens of the E. E. Mott strain. June, untested, 90 cts.; July 75 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

Ready to mail now. Tested Italian queens at 75 cts.; selected for \$1.00. JOHN KOENIG, 617 Monroe Ave., Evansville, Ind.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10 per doz. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—1 lb. 3-band Italian bees, \$1.00; untested queen, 65 cts.; tested, \$1.00; select tested, \$1.25. Rosedale Apiaries. J. B. MARSHALL & SON, Big Bend, La.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb. D. L. DUTCHER, Bennington, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O. is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Now booking orders for three-frame nuclei, Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction. S. G. CROCKER, JR., Roland Park, Md.

FOR SALE.—250 colonies of high-grade Italians and fine location on virgin alfalfa at a bargain. New modern equipment, comb and extracted; new country, fine climate, and bee business developing rapidly. Splendid opportunity for energetic man. A. W. F. LEE, Cordell, Okla.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowlstown, Tenn.

FOR SALE.—Fine Italian queens and bees. Untested, \$1.00 each; 6 for \$5.00; dozen, \$9.00; \$60 per 100. For pound packages, see my large ad. in GLANINGS for April 1 and 15. J. F. ARCHDEKIN, Bordlonville, La.

Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 70 cts.; 12, \$8.00; select untested, 80 cts.; 12, \$9.00; untested, July, 10 cts. off each; \$1.00 per doz. off. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1. G. W. MOON, 1904 Park Ave., Little Rock, Ark.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

Let us send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want, we shall be glad to write you what the express will amount to. R. V. & M. C. STEARNS, Brady, Tex.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. 1/2-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Indianola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted. J. W. SHERMAN, Valdosta, Ga.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free. J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

FOR SALE.—Bright Italian queens at 75 cts. each; \$7.50 per dozen or \$60 per 100. Ready April 15. Safe arrival and satisfaction guaranteed.

W. W. TALLEY, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

MULLIN'S UNRIVALED ITALIAN QUEENS.—Gentle and prolific, three-banded, and one of the best honey-gathering strains. After May 1 to July 1, untested, \$1.00; \$9.00 per dozen; special rates after July 1. Try one. You will want more.

O. S. MULLIN, Holton, Kan.

Queens now ready. Golden and three-band Italian queens. I shall do my best to fill all orders promptly. If any queen fails to give satisfaction I will replace her free. Untested, 75 cts. each; six for 4.00. Send all orders to

E. A. SIMMONS, Greenville, Ala.

Queens by return mail, or your money back. Guaranteed purely mated three-banded Italians, Northern strain, bred for gentleness, honey-gathering, and wintering. Select untested, \$1.00 each; six for \$5.00. Select tested, \$1.75 each. Write for price on large orders. State inspector's certificate. Satisfaction guaranteed.

J. M. GINGERICH, Kalona, Iowa.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested, one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 315, Buffalo, Tex.

If you want a queen for that queenless colony, we can send it to you by return mail. Young tested queens, \$1.00, \$12.00 per dozen. Untested, \$1.00; \$9.00 per dozen. We breed the three-band Italians only, and we breed for the best. Our thirty years of queen-rearing proves this. We never had a case of foul brood in our apiaries, and we guarantee every queen sent out by us.

J. W. K. SHAW & Co., Loreauville, La.

Three-banded Italian queens guaranteed to please and to give results; 75 cts. each; 6 for \$4.25; 12 for \$8.00; 100 for \$65.00, in lots to suit; select breeders, \$5.00 each. One-pound swarm with fine queen, \$2.25 each; without queen, \$1.50 each. Write us your wants. We will give you a square deal. We are keeping up well with orders, getting them as we are. June will be the big bee month. Always give your express office when wanting pounds of bees. CURD WALKER, Queen-breeder, Jellico, Tenn.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can therefore supply you with the biggest, strongest nuclei you will be able to find anywhere. Our bees are all on the standard-size Hoffman frames, combs built on full sheets of foundation, and on wired frames. We are now shipping nuclei, and can fill your orders promptly. Bees guaranteed to be free from disease.

HYDE BEE Co., Floresville, Texas.

HELP WANTED

WANTED.—At once, young man to work with bees. Give age, and wages expected, in first letter.

M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

SITUATIONS WANTED

WANTED.—Position in apiary; experienced; wages \$50 a month and board.

GEO. A. BALDERSTON, Kennett, Cal.

Convention Notices

A summer course in beekeeping is being arranged at the Ontario Agricultural College for the week of June 12. It will consist of apiary demonstrations and practice. Day sessions will be conducted in the apiary as far as possible, and four illustrated evening lectures will be given during the week.

Such special subjects as wintering, swarm control, bee diseases, queen-rearing, requeening, and the like will be taken up in turn, and demonstrated by means of the bees and appliances in the apiary. Students will be given practice in the various manipulations under discussion. Instruction will be given by the Provincial Apiarist, assisted by Mr. James Armstrong, Vice-president of the Ontario Beekeepers' Association, and other prominent Ontario beekeepers.

Mr. Frank C. Pellett, State Apiary Inspector of Iowa, has consented to spend a few days of the week in attendance and assist in the instruction. He will also give illustrated evening lectures on "Beekeeping in the Mississippi Valley," and on "Our Back-door Neighbor." The latter subject deals particularly with the economic importance of wild life, including bees and insects. Many years of time have been spent by the speaker in its preparation, single families being under observation for months at a time. Many of the slides made from photographs taken from life by the author in the field were secured with great difficulty. Mr. Pellett is an excellent speaker, and a master of the different subjects which he will discuss.

Judging by the correspondence to hand, the interest in this course will be excellent. There are no tuition fees charged, the only expense being for railroad fare and board while in attendance.

The Wellington County Beekeepers' Association is arranging to hold a field day at the College during the week of the summer course. Beekeepers who find it impossible to attend for the whole week are cordially invited to enjoy the good things of the field day, the exact date of which will be announced later.

Guelph, Can., May 11.

MORLEY PETTIT.

“The Doolittle Plan”

of working out-apiaries is fully described in **The Management of Out-apiaries** by the well-known author, G. M. Doolittle, of New York.

This is the new title of “A Year's Work in an Out-apiary” by the same author. This is the fourth revision of this work on this topic of management of outyards. If you haven't a copy of former editions you should not fail to get this edition. Price 50c.

Order now from the publishers.

The A. I. Root Co., Medina, O.

SPECIAL BARGAINS

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE-HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of eight-frame packed 5 in a package, which we offer to close out as follows: YW 5/8, one story, eight frames, 12 packages, five hives each, at \$8.00.

NO. 2 OR B GRADE HOFFMAN FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

METAL SPACERS SLIGHTLY DEFECTIVE.

In making the metal spacers for the metal-spaced frames there are a percentage which come out either sheared a little scant on one side, or with slight breaks in the tin where it is drawn up into the spacing-boss. These are hardly passable as perfect stock, but in actual use they will answer every purpose as a spacer. Rather than throw these into the scrap we will offer them while they last, including nails. To mail them on, at 20 cts. per 100; \$1.80 per 1000. Transportation charges extra.

1 3/4 H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1 1/2-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTING OR CHUNK HONEY.

We are offering, while they last, the following bargains in nated supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

200 D9/10, nated and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100.

410 D8/10, nated and some painted two coats, some one coat; 273 not painted. Sell new for 90 cts.; offered at \$5.00 for 10; \$45.00 per 100.

180 8/10 supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first two lots are the 5 1/2-inch supers with hanger cleats and shallow Danz. frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

ALEXANDER FEEDERS FOR EIGHT-FRAME HIVES.

The Alexander feeder as we now make it is adapted to either eight or ten frame hives. Formerly we made a shorter length for the eight frame than for the ten-frame hive. In cleaning up old stock we find 300 of these eight-frame feeders which we offer, to close out, at half regular prices—viz., 15 cts. each; \$1.35 for 10; \$11.00 per 100; \$30.00 for the lot.

TIN COMB-BUCKETS.

While these are listed in the catalog in one line at \$1.50 each, their convenience in carrying combs to the extractor shut up from robbers is not set forth. We have a surplus stock, and offer them, to reduce the number on hand, at \$1.25 each. You can place four Hoffman frames or five non-spaced frames of Langstroth size in each bucket.

JONES HONEY-KNIVES.

This is a form of honey-knife used largely in Canada, and preferred to the Bingham by those who have tried it. The blade is 1 1/2 inches wide, and a flat V or triangular shape. We had a lot made to supply a call we had, and still have in stock 23 of them. We offer them at 75 cts. each. Mailed as a pound parcel when packed.

SHIPPING-CASES FOR 12 AND 24 SECTIONS.

When we discontinued listing shipping-cases to hold 12 sections we still had quite a stock of various styles on hand, many of which are still in stock. We have also some of the older styles of cases for 24 sections of various sizes. We offer these various cases to close out at the following bargain prices. Here is an opportunity to lay in a stock of cases preparatory to the honey crop near at hand at very low prices. None of these cases, except as noted, are large enough to take sections with cartons or corrugated liners, except the bottom sheet. 12-lb. 2 or 3 rows cases with 2 and 3 inch glass for the 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, 4x5x1 3/4 sections, packed 50 in a crate at \$4.00 a crate; packed 10 in a crate at 85 cts. a crate. A few crates of cases for 16 sections 4 1/4 x 1 1/2 at \$4.50 per crate of 50 or 95 cts. per crate of 10. A few crates of cases for 24 sections 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, and 4x5x1 3/4 at \$8.00 per crate of 50; \$4.00 per crate of 25, or \$1.70 per crate of 10. The 12-lb. safety cases, which we no longer list with safety cartons, and 2-inch glass for 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, and 4x5x1 3/4 sections, per crate of 10, \$1.20; per crate of 25, \$3.00. Without cartons, but including corrugated liners and glass, \$4.50 per crate of 50.

NO. 2 OR B GRADE SECTIONS.

We have a surplus stock of B grade sections in all the commonly used sizes and styles, and are behind on orders for No. 1 or A grade in some kinds. To insure prompt shipment it may be advisable to order B grades if you can use that grade. In beeway style the B grade costs 50 cts. per 1000 less than A grade, while in the plain or no-beeway styles the reduction for B grade is 75 cts. per 1000. The loss from unusable sections in B grade is very little more than in the A grade. Try them if you have not done so.

SWEET-CLOVER SEED.

We have a good supply of very choice hulled white-sweet-clover seed scarified for quick germination, requiring only 10 lbs. per acre for a good stand. We offer this for a short time to reduce stock at \$18.00 per 100 lbs. Now is the right time for sowing with a nurse crop to produce hay or bloom with seed next year. We have also choice hulled yellow which we will sell at \$15.00 per 100 lbs. A thousand pounds of hulled white for shipment direct from Des Moines, Iowa, not scarified, offered at \$15.00 per 100 for prompt acceptance.

FOR SALE.—1910 Model 4-cylinder 30 H. P. REO, run only 15,000 miles, in fine condition. Is of racing type, with gasoline-tank in rear, two-seated, no fenders. Gas lamps, no starter. Tires in good condition. Ideal car for running out to outyards and carrying light loads. \$200.00.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

CONVENTION NOTICES

Field day and basket picnic of the members of the Colorado Honey-producers' Association, at Lindenmeier Park Lake, Fort Collins, Saturday, June 10, 1916. Meeting open to everybody interested in bee culture.

9:00 A.M.—Meeting called to order by Pres. Geo. Miller of Littleton.

9:15 A.M.—"Best Methods of Improving our Stock of Bees." Discussion led by Harry Crawford, Broomfield, and Prof. D. W. Spangler, Longmont.

9:45 A.M.—Question-box.

10:00 A.M.—"The Bee-inspection Law of Colorado, Its Interpretation and Application," Prof. C. P. Gillette, Agricultural College, Ft. Collins.

10:30 A.M.—Demonstration of starting queen-cells by the Doolittle plan, F. G. Rauchfuss, Englewood, and F. L. Stone, Denver.

11:00 A.M.—"Swarm Control;" 1. In relation to Honey Production; 2. In Making Increase. Discussion led by A. C. Van Galder, Berthoud, and A. Elliott, Timnath.

11:30 A.M.—"The Use of Honey in the Home," Address by Miss Haynes, Department of Domestic Science Extension Work, Agricultural College, Ft. Collins, and Mrs. W. P. Collins, Boulder.

12:00 M.—Recess for luncheon. (Visitors are expected to bring lunches, but coffee and lemonade will be provided.)

1:30 P.M.—"How Can We Increase the Use of Honey?" B. F. Hastings, Golden, and C. H. Wolfe, Greeley.

2:00 P.M.—Visit to the Agricultural College.

Fort Collins is on the Colorado & Southern Railway, and on the Union Pacific. The train service with Denver and northern Colorado points is very good. The roads through northern Colorado are good. This section north of Denver is the garden spot of the state. We suggest to members having automobiles to make the trip in their car, bring their families or beekeeping friends along; let them enjoy the beautiful scenery along the way, and have a good time at Lindenmeier Lake Park. This place is the popular picnic place of that city. It is one mile from town, and street-car runs right up to the gate. There is plenty of shade, a large lake with boats, and every comfort desired. Be sure to come, and induce other beekeepers to join you.

TRADE NOTES

BEESEX LOWER.

Beeswax is being offered us at somewhat lower prices than were being asked sixty days ago. We have sufficient in stock to last us for some months, even with the excellent trade we are having in foundation. We quote, till further notice, 28 cts. cash, 30 in trade, delivered at Medina for good average wax.

FOUNDATION MACHINE IN OREGON.

We offer a 6 x 2½-inch thin-super foundation-mill at Independence, Oregon, at the bargain price of \$12.00. This is a good second-hand mill sold to a party who died before it was put into use. His widow desires to dispose of it. Who in the Northwest can use it and help themselves to a bargain, and help a widow at the same time?

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for sample of foundation from any mill in the list which may interest you.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, 2½ x 10 hexagonal light-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0230, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0233, 2½ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, 2½ x 6 extra thin-super mill in very good condition. Price \$12.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.

No. 0246, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

THE A. I. ROOT COMPANY, Medina, Ohio.

SPECIAL NOTICES

BY A. I. ROOT

FATHER, GRANDFATHER, GREAT-GRANDFATHER.

Real manhood, it seems to me, commences when somebody begins to call a man "father." And when it comes to being called "grandfather" he ought to realize a greater responsibility is resting on his shoulders; and if a kind Providence permits him to live until he is a *great-grandfather*, he should feel, especially if he is in the full enjoyment of his faculties, that there is a still greater reason for devoutly thanking God for having permitted him to live so long. And what I have had to say about fatherhood applies, of course, with as great (or greater) force to motherhood. The above remarks are prompted because on Sunday morning, May 21, Mrs. Root and I could thank God that he had permitted us to see not only our children's children, but were permitted to welcome into this world or ours *one great-granddaughter*, Rebecca Ellen Calvert. At this time, May 27, both mother and baby are doing finely.

Perhaps I should add that the father and mother of this new arrival are Mr. Howard E. Calvert and the daughter of Mrs. H. G. Acklin, mentioned on page 646, Aug. 1, 1915. "Howard" is the eldest of our oldest daughter "Maude," and Mr. J. T. Calvert, General Manager of The A. I. Root Co.

"THE GOOD TIME COMING."

Mr. A. I. Root:—I have just read your temperance talks in Feb. 1st GLEANINGS, and am thanking God for the progress that common sense and righteousness are making, and for a few fearless men like you and Billy Sunday who keep constantly fighting the great evils of our country. We will secure a few more recruits, and make a few more charges, and, with the help of God, victory will be ours.

You and I are old, and may not live to see the blessed day; but earth shall glisten in the ray of the good time coming, boys, the good time coming, when the saloon will be a remnescent of the darker days of the past.

While you have on your war-paint in opposing the saloon, there is another evil that needs the batteries of all righteous people turned upon it, and that is the pool hall. Of itself it is not so formidable an enemy of God; but in dry territory, at least, it is a bureau of evil information where the thoughtless youth can always find some one who can direct him to the boot-legger, the harlot, or the gambling-den. I pray God that they and the saloon may go down together.

D. W. HOLLAND.

Geuda Springs, Kan., Feb. 14.

BOOKS FOR BEEKEEPERS AND OTHERS

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price

PRACTICAL WORKS ON BEE CULTURE.

A B C of Bee Culture, cloth.....	\$2.00
" " " half leather.....	2.75
" " " German, paper.....	2.00
" " " German, cloth.....	2.50
" " " Spanish, cloth.....	2.50
Advanced Bee Culture.....	1.00
Fifty Years Among the Bees. New edition..	1.00
By Dr. C. C. Miller. Dr. Miller is too well known among the beekeeping fraternity to need any introduction. His book is charmingly written and covers his experience in detail.	
Cook's Manual, cloth.....	\$1.15
Doolittle on Queen-rearing.....	1.00
Langstroth on the Honeybee, revised by Dadant	1.25
Quinby's New Beekeeping.....	1.00
British Beekeepers' Guide-book, by Thomas William Cowan, England.....	1.00
The Honeybee, by Thos. Wm. Cowan.....	1.00
How to Keep Bees.....	1.00
Modern Bee-farm. By S. Simmins (cloth bound)	2.00
Wax Craft. Cowan.....	1.00

POPULAR BOOKS ON BEE CULTURE.

The Bee People, Margaret W. Morley.....	1.50
The Honey-makers, Margaret W. Morley.....	1.50
Life of the Honeybee, Maeterlinck.....	1.40
The Swarm, Maeterlinck.....	1.40
The Bee-master of Warrilow, Edwards.....	.57
Lore of the Honeybee.....	2.00

Alexander's Writings on Practical Bee Culture. By the late E. W. Alexander, who conducted the largest apiary in the United States. A wonderfully interesting discussion of beekeeping in its broadest phases. Any one can understand it; 35 chapters, 95 pages. Paper bound, 50 cts. postpaid.

The Management of Out-apiraries. By G. M. Doolittle. Packed full of most valuable information ever given to beekeepers. A practical and interesting book by a very successful apiarist. Sale has reached nearly 5000 copies; 60 pages, paper bound, 50 cts. postpaid.

MISCELLANEOUS HAND-BOOKS.

A B C of Carp Culture, by Geo. Finley (post- age 5 cts.).....	.25
A B C of Potato Culture, by Terry. New edition, revised and enlarged; paper, 50c; cloth, 75c; mail, 85 cts. (postage, 7 cts.).....	

This is T. B. Terry's first and most masterly work. It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded not only in getting more potatoes, but even better ones, and in producing them at less expense also, than by any plan or system before the time he began his experiments in 1885. This book has already passed thru three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

A B C of Strawberry Culture, by T. B. Terry. New edition, revised and enlarged; paper, 45c; cloth, 68 cts.; by mail, 75 cts.

After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings thousands of people have not only been able to give their families but the whole wide

world better strawberries, and more of them, than they ever saw before.

Asparagus Culture (postage 6 cts.).....	.40
Alfalfa Culture (postage 6 cts.).....	.40
Barn Plans and Out-buildings.....	.90
Fruit Harvesting, Storing, Marketing, etc. (post- age 10 cts.).....	.75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, and gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

The Lure of the Land; Farming after Fifty..\$1.50

A most valuable book, just out, by Dr. H. W. Wiley, formerly Chief Chemist of the United States. You want this book in order to be able to distinguish real science from popular humbugs if for nothing else. No man at the present day is better prepared, in my opinion, to give us facts than Dr. Wiley, who for so many years held his important office. Price \$1.50 postpaid; or the book and GLEANINGS one year for \$2.00.

Farming with Green Manures, postpaid..... .90

This book was written several years ago; but since competent labor has got to be so expensive and hard to get, many farmers are beginning to find they can turn under various green crops much cheaper than to buy stable manure and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops and keeping up the fertility by a similar treatment, on our ten-acre farm.

Farm, Gardening, and Seed-growing; postage 7c.....	.90
Fuller's Grape Culturist (postage 10c).....	\$1.15
Garden and Farm Topics, Henderson, postage 5c.....	.60
Gardening for Pleasure, Henderson, post. 12c.....	1.10

While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

Gardening for Profit (postage 12c)..... \$1.10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, altho we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

Gardening for Young and Old, Harris, postage 8c..... .90

This is Joseph Harris' best and happiest effort. Altho it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground, and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

Grasses and Clovers, with Notes on Forage Plants (postage 3c).....	.20
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This is by Henry A. Dreer, author of the book "Vegetables under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

Greenhouse Construction, by Prof. Taft (post-
age 10c) \$1.15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

Greenhouse Management, by Prof Taft (post-
age 12c) \$1.15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages, and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruit and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

Gregory on Cabbages, paper (postage 5c) 20

Gregory on Squashes, paper (postage 5c) 20

Gregory on Onions, paper (postage 5c) 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

Handbook for Lumbermen 05

Home Pork-making; 125 pp., illus., post. 5c. .40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures, describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cts.; ours as above.

How to Make the Garden Pay (postage 15c) \$1.35

By T. Greiner. Those who are interested in hotheds, cold-frames, cold green-houses, hot-houses, or glass structures of any kind for the growth of plants, cannot afford to be without this book. Publisher's price, \$2.00.

How to Keep Well and Live Long (post. 10c) .90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. That is pretty strong language, I admit; but since Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food, in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

Maple Sugar and the Sugar-bush (post. 3c) .. .25

Manures: How to Make and How to Use

Them; in paper covers (post. 5c) 30

The same in cloth covers (postage 6c) 65

Nut Culturist, postpaid \$1.25

Onions for Profit (postage 3c) 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the author's enthusiasm; and even if one is not particularly interested in the business almost any person who picks up Greiner's books will like to read them thru.

Practical Floriculture, Henderson (post. 8c) \$1.10

Small-fruit Culturist, Fuller 75

Experiments in Farming, by Waldo F. Brown

(postage 2c) 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and

the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or anything else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

Our Farming, by T. B. Terry (postage 10c) 75

Same, paper cover, postpaid. 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10 cts. less.

Talks on Manure (postage 10c) \$1.35

By Joseph Harris. Written in conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

The Dollar Hen (postage 10c) 90

The above book will be clubbed with GLEANINGS for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cts.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all thru our poultry books and journals.

The New Rhubarb Culture (postage 5c) 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book for the lessons taught indirectly in regard to forcing other crops besides rhubarb. Publisher's price 50c.

Tile Drainage, by W. I. Chamberlain (post. 5c) .45

Fully illustrated, containing everything of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost anything else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

Tomato Culture (postage 5c) 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South with some remarks by A. I. Root adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning factories. Part third.—By A. I. Root, treats of plant-growing for market and high-pressure gardening in general.

Winter Care of Horses and Cattle (postage 3c) .25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

What to Do, and How to be Happy while Do-

ing It (postage 8c) 65

The above book by A. I. Root is a compilation of papers published in GLEANINGS IN BEE CULTURE in 1886, '87, '88. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages; cloth.

Same, paper covers (postage 8c) 40

Notice.—Having a large stock of this last book on hand, May 15, 1916, we reduced the price to cloth bound, 25c; paper, 15c postpaid.

THE A. I. ROOT CO., MEDINA, O.

HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield Co.

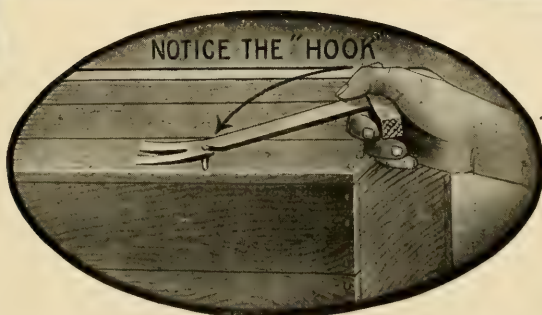
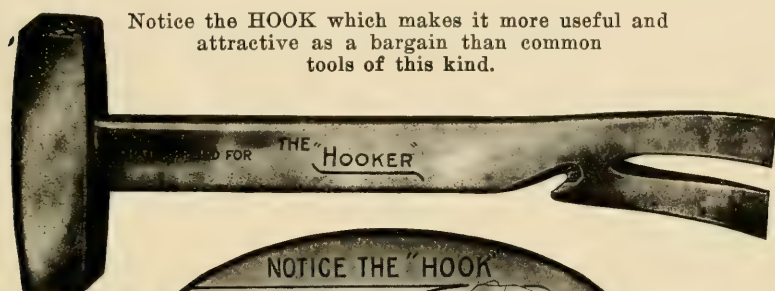
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Useful alike to the man of the family and to the housewife who so often needs a handy tool of this kind.



Showing how to pull a nail with the slot in the side of the tool.

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ALL IN ONE PIECE.

It is hardened and tempered and is almost indestructible. Gun-metal finish.
No wooden handle to split when you begin to pry.

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Introduce GLEANINGS to beekeepers in your locality and send us a **new yearly subscription** with remittance of \$1.00, for which you will secure a HOOKER CRATE-OPENER in return for your trouble.

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Gleanings in Bee Culture, Medina, Ohio

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

	June and July	August and later
Untested Queens	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00
Tested Queens	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75
Select Tested Queens	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00
Very best queens for breeding,	\$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.	

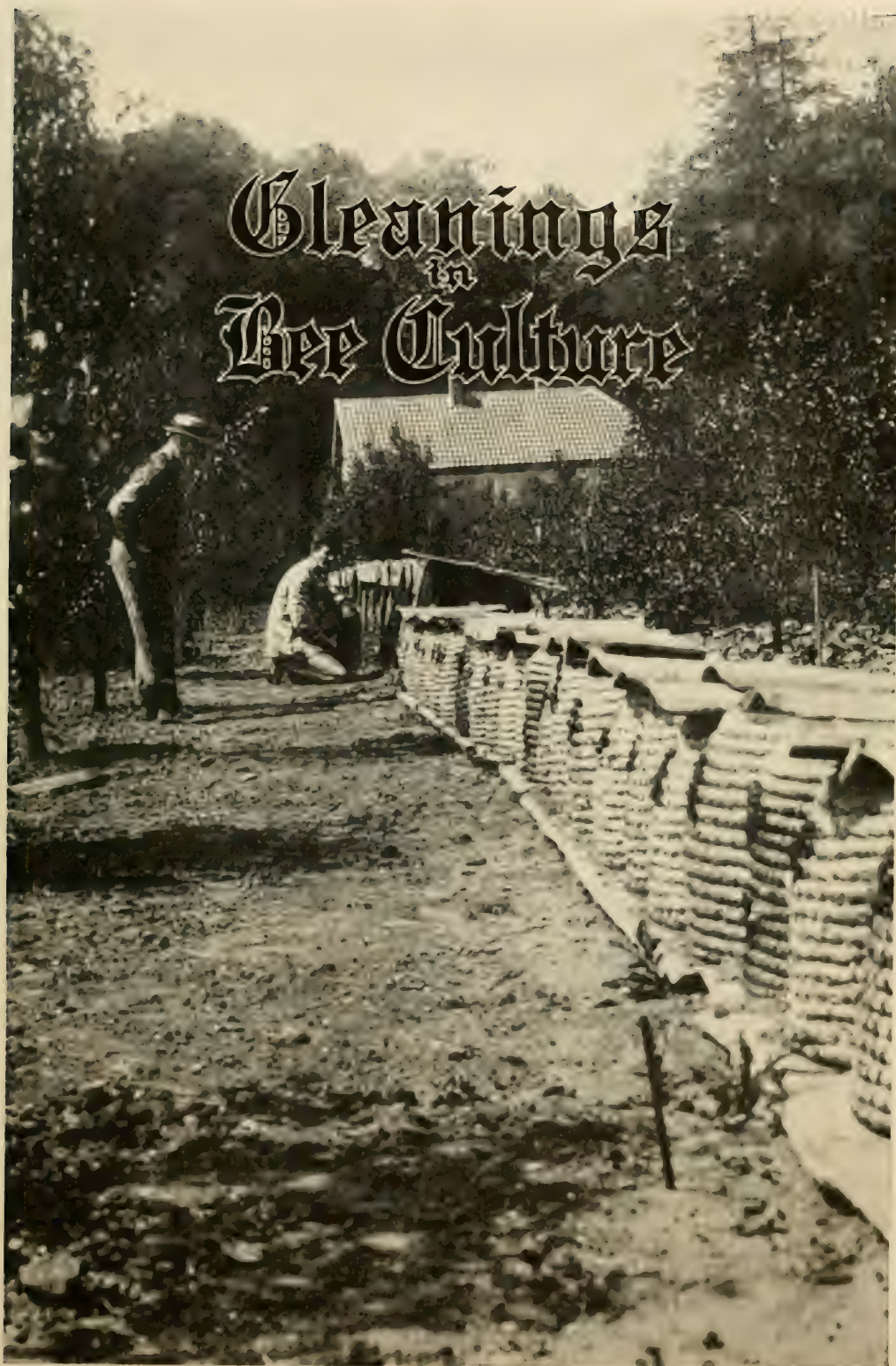
Add price of queen. If any of our untested queens should prove to be mismated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

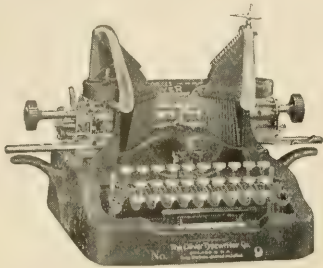
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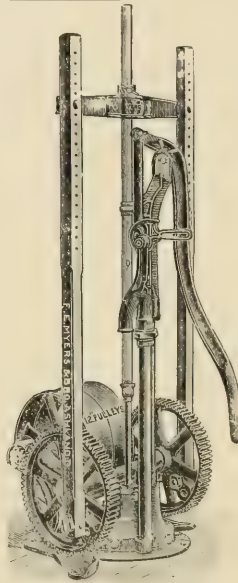
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A Myers Pump, a Myers Jack, and a Gasoline Engine furnish a dependable water supply for the average requirements.

Myers Jacks are easy to connect to any windmill head pump, without disarranging the pump or pipes in any manner. They are neat in design, well proportioned, and sturdily built. The side arms are steel or tough wood and so constructed that the cross-head can be raised or lowered to suit different height pumps. The gears are machine-cut. These are some of the reasons that Myers Jacks are favorites.

Write for circular showing all styles including the new type for operation by electric motor.

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By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c; with other goods, 70c.

OLD COMB AND CAPPINGS rendered into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

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Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

- Honey packed in second-hand cans.
- Honey in badly stained or mildewed sections.
- Honey showing signs of granulation.
- Leaking, injured, or patched-up sections.
- Sections containing honey-dew.
- Sections with more than 50 uncapped cells, or a less number of empty cells.
- Sections weighing less than the minimum weight.
- All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each

five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W" "L A" "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

- Extracted honey packed in second-hand cans.
- Unripe or fermenting honey weighing less than 12 lbs. per gallon.
- Honey contaminated by excessive use of smoke.
- Honey contaminated by honey-dew.
- Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 1913

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew, honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ST. LOUIS.—The demand in this market for comb honey has been very light, and not enough selling to make firm quotations. Extracted honey has been in good demand, and we believe this market is almost cleaned up of last year's stock, and new honey will meet with a good demand. No. 1 bright amber comb honey is bringing \$3.00 per case; No. 2, \$2.50 per case; under grades, less. Southern extracted honey, amber, in barrels brings from 6 to 6½; in cans, 7 to 7½; dark, ½ to 1 ct. per lb. less. Beeswax is firm at 30½ for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, June 6.

ALBANY.—Very little honey is moving on this market now. The extracted honey is all sold, and some comb honey unsold. This is the off month for this market. Demand will not begin again until August. Beeswax brings 28 to 30.

Albany, June 5.

H. R. WRIGHT.

CHICAGO.—Very little honey has been sold during the past two or three weeks. Comb honey is selling at 12 to 13 for the white grades, and ambers from 1 to 2 cts. per lb. less. Extracted brings 7 to 8 for the white grades, and 6 to 7 for ambers. Beeswax brings 30 to 32, according to color and cleanliness. Chicago, June 5.

R. A. BURNETT & CO.

INDIANAPOLIS.—Comb honey as well as extracted is moving very slowly at this time. This, of course, is due to the weather conditions. Comb honey is selling from \$3.50 to \$4.00 per case. Extracted is bringing 9 to 11 cts. We are paying producers 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, June 5.

WALTER S. POWDER.

DENVER.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: No. 1, per case of 24 sections, \$2.93; No. 2, \$2.70. White extracted, 8½ to 8¾; light amber, 8 to 8¼; amber, 7 to 8. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, Col., June 6.

F. Rauchfuss, Mgr.

ZANESVILLE.—Honey is in pretty good demand, with quotations practically unchanged. Locally stocks, except western, are pretty well cleaned up. With normal weather conditions there will be better than an average crop of white-clover honey in the north-central states. While the market may remain firm for a time, some weakening after, say, thirty days would not be surprising. Comb is selling at \$4.00 a case down, according to quality and quantity. Extracted is in limited demand, with prices 9 to 11. For beeswax, 29 cts. cash, 31 in trade, is offered for good average grades.

Zanesville, June 5.

E. W. PEIRCE.

KANSAS CITY.—There has been no new honey on the market. There are a few cases of honey, No. 1 selling at \$2.75 to \$3.00, and some No. 2 stock selling at \$2.50 to \$2.75. This stock is showing a more or less candied condition. The demand for extracted honey is better. The market seems to be cleaning up quite rapidly, prices ranging from 6 cts. for dark amber to 7½ for real light amber. There is no strictly white extracted honey on the market. Beekeepers report the condition of the bees good, and the outlook is for a good flow of honey.

C. C. CLEMONS PRODUCE CO.

Kansas City, June 5.

Watchful Waiting Causes You to Get Left

So Buy your Bee Supplies Now.

Promises to be a Honey year. Ship on day of receipt of order.

Lewis' Beeware—finest in the world.

Send for our 1916 Catalogue.

We do Beeswax rendering. Ship us your old Combs and Cappings. Write for prices.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

Queens! Queens! Queens!

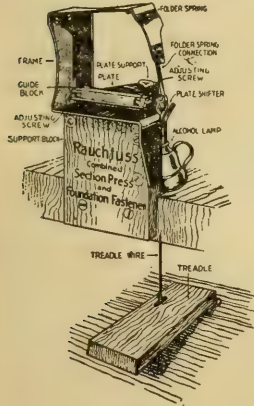
We will make a specialty of shipping Queens, Nuclei, and Full Colonies from Florida during the present month. We are breeding from queens that produced a surplus of 300 pounds per colony in a 24-day honey-flow in Florida, and that are unexcelled for prolificness, gentleness, and honey-gathering.

When you order queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from our famous Honey-gathering Strain for Queens, Nuclei, and Full Colonies promptly, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. Write for special price on orders of 50 or more. We ask you to give us a trial and let us prove to you that our stock is unexcelled by anything on the market.

Island-bred Italian Queens			Prices on Nuclei and Full Colonies without Queens	
	1	6	12	
Untested	\$1.50	\$ 7.50	\$12.00	
Tested	2.00	10.50	18.00	1-frame Nucleus, \$2.00
Select Tested	3.00	15.00	24.00	5-frame Nuclei, \$5.00
Tested Breeding Queens, \$5.00 and \$10.00 each.				2-frame Nuclei, \$3.00
				8-frame Colony, \$8.50
				3-frame Nuclei, \$4.00
				10-frame Colony, \$10.00

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Beeswax wanted, cash or in trade.

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Gleanings in Bee Culture

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Our breeding stocks, our methods of breeding cannot be surpassed anywhere

If you want to know who we are, read "How to Produce Extracted Honey," also "Modern Queen-rearing," both of which we wrote for The A. I. Root Co., while we were their head apiarist some 12 years ago. Untested queens, \$1.00; tested, \$2.00. Other prices on request.

Geo. W. Phillips, Lebanon, Ohio

GOLDEN ITALIAN QUEENS

Bred from a strain of great honey-gatherers; gentle and prolific. Untested, one, 75 cts.; six, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. Pfeiffer, R. F. D. 15, Los Gatos, California

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As we are going to move August 1, we offer the inclosed list of goods while they last at 10 per cent discount from catalog prices. Order quick, as they will not last long.

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35 AE 5/8	25 2P/8		800 Danz. Brood-frames	1 Hatch Wax-press
45 AE 5/10	10 2I/8		800 Metal-space Frames	500 Flat Tins 14 to 16 inches long
10 D 5/10	10 2I/10		123 L Fences	200 12-lb. 4x5 Honey-cases in 50's
60 E/8	40 2P/10		100 T Fences	225 12-lb. 4x5 Honey-cases in 25's
70 E/10	10 4P/10		5 Danz. Fdn. Cutting-boxes	212 12-lb. 4x5 Honey-cases in 10's
1 8-fr. Observatory Hive with Super		300 P Section-holders	12 Swarm-catchers	200 9 1/4-inch 4R Cases in 50's
1500 A4 1/4 x 1 15/16 Sections		10 Pepper-box Feeders	90 Danz. Super Followers	30 9 1/4-inch 4R Cases in 10's
1000 A4 1/4 x 1 3/4 Sections		80 Danz. Division-boards	5 No. 15 B Cowan Extractors	60 12-inch Cases 1 1/8 in 10's
1000 A4 1/4 x 4 1 3/4 Sections		1 No. 17 B Cowan Extractors	2 No. 5B Novice Extractors	100 D Section-cases
1000 B4 1/4 x 4 1 3/4 Sections				40 Chaff Division-boards
5000 Metal Spacers				3 Boxes 8x10 Glass
30 Bingham Smoke Engines				25 Hotbed Sash
50 No. 1 Honey-boards				1 Alexander Strainer-pail

S. J. GRIGGS & COMPANY . 25 North Erie Street . TOLEDO, OHIO

There is Money in Our 3-banded Italian Bees

20 Years of Select Breeding Gives Us Queens of Highest Quality

Queens for Honey Production - - Queens of Unusual Vitality

Our select colonies used for breeding purposes, larvæ and select drones are those of the highest standard, the choice of over 1000 hustling, honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus very effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get cells that produce large, long-lived, and hardy queens, which give workers unexcelled as honey-producers. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved.

All orders will be filled promptly by return mail or soon. We have no disease of any kind. Satisfaction and safe arrival we guarantee.

Select untested . . . 65 cts. each or \$60.00 per 100 Tested \$1.00 or \$90.00 per 100
Untested 50 cts. each or \$45.00 per 100 Select tested \$1.25 or \$115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.

Write for descriptive price list.

M. C. Berry & Company Hayneville, Alabama

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

ADVERTISING RATES

Twenty-five cents per agate line flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2 $\frac{5}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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Nearly forty years on the market and the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in Beekeepers' Supplies.

Smoke Engine, 4-inch stove	28 oz.	\$1.25
Doctor, 3 1/2-inch stove	26 oz.	.85
Two larger sizes in copper extra		.50
Conqueror, 3-inch stove	23 oz.	.75
Little Wonder, 2 1/2-inch stove	16 oz.	.50

Hinged cover on the two larger sizes. Postage extra.

Tin Honey-cans---Low Prices

Our three-year contract is protecting us from high prices until July 1. We will give the beekeepers the benefit of our low prices, so be sure you secure your supply before that date. Sixty-pound cans shipped from Ohio factory or Chicago—friction-top from Chicago. Give us the quantity wanted and let us figure with you. Friction-top cans and pails—5-lb. size, per 50, \$2.50; 100, \$4.50; 203, \$8.50; 1015, \$40; 10-lb. size per 50, \$3.50; 100, \$6.25; 113, \$6.75; 565, \$33.75.

A. G. WOODMAN COMPANY
Grand Rapids, Michigan

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

If you need supplies or bees shipped promptly write us. Our stock is complete, no delays. Chaff and single-walled hives. Bees by the pound, nucleus, or full colonies. Untested queens, \$1.00; tested, \$1.25. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

LOS ANGELES HONEY CO.
633 Central Bldg. . . . Los Angeles, Cal.

**Buyers and Sellers
of Honey and Wax**

Write Us for Prices when in the Market



Established 1885

A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

For Quick Shipments
Write or Telegraph
Superior Honey Co.

Ogden, Utah
Branch at Idaho Falls, Idaho

Beehives, honey cans, and "everything in bee supplies." Manufacturers of "Superior" foundation (Weed process).

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Your Honey Crop Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

NOW IS THE TIME

To order your supplies, and thus have every thing in readiness for the spring.

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

What do you know about that

We are getting an almost innumerable number of orders to go by parcel post --- a great thing for beekeepers on rural delivery. BUT REMEMBER to always include enough in the amount sent to cover the postage required. . . .

For instance, if you are within 150 miles of Syracuse, and need 500 sections, we can mail them for 41c; 250 sections for 21c, and 100 sections for 11c. Foundation in 5-lb. lots, can be mailed for 11c; 2 lbs. for 7c; 1 lb. for 6c. Always figure postage more than foundation weighs. Rates inside of 150 miles once the total weight plus 4.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Make This a Lewis Year

While you are starting the year's work---getting your bees ready for business---taking stock of supplies on hand and speculating as to what the season's outcome will be

Make This Resolution

That you will use LEWIS BEEWARE this year—because it means success insurance to you—because it means beehives and parts made of the best material by skillful workmen—because it means goods accurately and systematically packed—because it means sections made of bright lumber, highly polished, accurately dovetailed, and scientifically grooved.

Lewis Hives are Built Like Furniture Lewis Sections are the Kind that do not Break in Folding

You will find LEWIS BEEWARE almost at your own door—thirty distributing houses in the United States and foreign countries. If you have not one of our catalogs send for copy at once.

G. B. Lewis Company, Watertown, Wis., U.S.A.
Exclusive Manufacturers Lewis Beeware

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JUNE 15, 1916

NO. 12

EDITORIAL

Mr. M. W. HARVEY, in this issue, gives some good orthodox advice on the control of swarms at outyards—see page 490.

Our Cover Picture

THAT the straw skep is not a relic of the past in every country is shown by the picture reproduced on the cover, sent by Hans Matthes. Mr. Hamelberg, in his article, page 481, explains why the straw hive is still used so extensively in Holland.

Honey as a Food

THE honey salesman should not fail to read very carefully the article by J. H. Heberle in this issue. The German chemists have proven that honey is more easily assimilated by persons of weak digestion than is ordinary cane sugar; and they explain why this is so.

A Long-time Subscriber

ONE of our subscribers, Mr. J. B. Ratcliffe, Amboy, Minn., sent in his check to cover five years renewal for GLEANINGS, making *thirty-eight years of continuous subscription*. We wonder how many others there are who have been with us this length of time.

Drifting

MR. R. F. HOLTERMANN, page 491, has not had the same experience, apparently, with his bees drifting in his big quadruple winter cases that we have had. He suggests that if we have the entrances arranged so they will face all points of the compass there will be no drifting. That is exactly what we did have, yet we had a great deal of drifting. Time and again, colonies that were very strong would become very weak, or one that was very weak became very strong.

We were well pleased with the big winter cases except in this one particular.

Honey Butterscotch

HERE is a recipe for some good old-fashioned butterscotch. You can't get enough of it, and it won't hurt you for it's nearly all honey.

Boil two cups of honey until it hardens when a little is dropped into some water. Stir the latter part of the time, taking care not to let it burn. Stir in half a cup of melted butter, add $\frac{3}{4}$ teaspoonful of salt, and flavor with vanilla. Pour on to a cold greased platter, and, when cool, cut into squares and wrap in oiled paper. Wrapping is quite important, as, unless the candy is kept away from the air, it will gather moisture and become sticky.

How Bees Made a Cherry Crop Possible

MR. E. WHITCOMB, a former president of the National Beekeepers' Association, and one of the prominent beekeepers of Nebraska, reports in the *Independent Farmer* of May 25 how his bees made it possible for him to secure a big crop of cherries when other cherry-growers, without bees, secured none. He says:

We had 300 bearing cherry-trees close to our apiary. During the blooming season there were two days during which our bees worked on these cherry-blossoms profusely. As a result we harvested 300 bushels of cherries when our neighbors two or three miles away, who had no bees, and whose trees bloomed as profusely as did ours, were compelled to come to our orchard for cherries.

PROF. M. B. WAITE, of the United States Department of Agriculture, among other things he has given to the public on the subject of the relation of bees to horticulture, says:

"Out of 2586 blossoms covered with gauze netting, only three apples set fruit. Of these the Baldwin, Spitzenburg, and Fameuse set some fruit. The Baldwin, which is often self-fertilized, gave four times better results when cross-pollinated. Cross-pollinated apples were larger, more highly colored, and better supplied with seed."

A Remarkable Clover-honey Year in Prospect

NOT in years have the prospects for clover honey over the country generally been so favorable as this year. The U. S. weather maps show that there have been copious rains thruout most of the clover districts. The rains of this season have pushed them forward still more. Unless cold and rainy weather continues thruout the blooming period there will be clover honey this year galore unless—well, wait.

Honey has been yielding well from a good many sources in the southern states. Altho the season was partly a failure in Florida it has been good in Texas. Conditions have been favorable for alfalfa in most of the western districts. The season will not be a failure in California.

Successful Shipments of Pound Packages of Bees from the South

THE Penn Co., of Penn, Miss., report that they have shipped 1000 different packages of bees without combs, and the loss has been insignificant. W. D. Achord, of Fitzpatrick, Ala., apparently has not had as good results, for he says he has put in claims of over \$500 against the express companies for delays in shipment.

We have been shipping bees from our southern apiary in combless packages to our Medina yard. When the weather is not too hot they arrive in fine condition. But it is evident that the express companies must learn the importance of keeping bees out of the sun, and putting them thru as speedily as possible.

There are Dollars in it; a Kink in Feeding

THOSE who are making increase will doubtless be interested in the reply to Dr. C. E. Blanchard, in the Heads of Grain department, page 496. In raising queen-bees, at least, we have proven one thing to our satisfaction—that the food supply for a cell-building colony must be continuous and very slow. Any feeder that gives to the bees a large amount of food all at one time, or even a few ounces in a few hours, is not suitable for stimulating. The Boardman one-hole feeder, or any feeder where the supply can be regulated down to a minimum, will produce more bees and more cells and more queens than any other feeder. With it a quart of feed can be made to last for two or three days, depending on the size of the colony. At the present price of

sugar climbing up to 10 cents it pays to have an economical feeder. A feeder like the Alexander, for example, where the bees can empty it in a couple of hours, starts the bees to rushing out of the hives in an uproar, and is quite liable to start robbing. With the Boardman stopped down to one hole there is no excitement, no rushing from the hive, but a continuous supply of food for cell-building, and brood-rearing goes on without a let-up.

Time and time again we have had fine batches of cells destroyed because there would be a few hours when there would not be a continuous supply of feed.

While this is something of a repetition of what we have stated already elsewhere, it is something that will bear repetition until beekeepers grasp the principle, *for there are dollars in it.*

The Ford Automobile for Out-apiary Work

FOR the first time in our experience we are using the Ford in place of our heavier machine at higher prices. We find the expense of operation about one-third that of the heavier machine. These little Fords of three-fourths ton weight will go where the ton and 1½-ton machines cannot. With their narrow tires they will run in ordinary wagon or buggy ruts, where the tires of the larger machines can scarcely travel. Just recently we put on the rear of our little Ford a light truck body; and we find that, while the little light outfit will not carry as heavy a load as the larger machine, yet it goes so much quicker and at so much less expense that we are using the Ford in place of the heavy truck about nine to one.

Are the Allies Using Honey in Place of Sugar for their Armies?

A YEAR ago cheap honey from the South was begging a customer; but now the condition is changed. Large amounts of honey are being exported, presumably for the armies of the Allies. The soldier is supposed to have a balanced ration, and sugar is important as one of the foods. When sugar is expensive, why not substitute honey? Sugar has gone up to such a high price that honey is actually cheaper, and is, of course, a better food.

The great nations of the world that are compelled to economize doubtless see this, and the result is that extracted honey will probably be firm during the coming season, even in spite of the prospect of a big crop.

While the great armies of the world are

possibly using honey, the extensive advertising of the A. I. Root Company in placing honey in families where it has never been before is doing its part. Many, some of whom are competitors, are hoping that the Root Company will continue its campaign of advertising honey.

How European Foul Brood Spreads; a Plausible Explanation

In this issue, page 479, Mr. Allen Latham, an unusually close and careful observer, has an article that is worth a careful reading—not only on the part of one who has European foul brood but the one who *may* get it, and the latter class is by no means small. His theory, that the spread of the disease may come thru an infected water supply from the fecal discharges of nurse bees from diseased hives, may have something in it. It is very clear that European foul brood does not spread in quite the same way that American does. If Mr. Latham's theory can be proven to be correct, it will help us materially in combating the disease.

That the disease can be held in control, or cured by the introduction of a mild acid in the food supply, does not seem quite so plausible in view of the fact that liberal feeding without medication or a good honey-flow will nearly always check European foul brood, and sometimes cure it. However, the plan is worth trying. Possibly the bacteriologist under Dr. Phillips could determine whether a mild acid is destructive to the *Bacillus pluton* that is the cause of European foul brood.

Exaggeration in Advertising; a U. S. Supreme Court Decision

EVERY now and then an advertiser, while giving value received, in order to get business will make extravagant claims. Not long ago an advertiser in our columns made claims concerning his queens that we regarded as extravagant and impossible, and we wrote him, requesting that he remove the objectionable feature; but he demurred. We insisted, and he finally complied. We were uncertain at the time whether we had the legal right to withdraw the objectionable sentence; but we came to the conclusion that we would stand damages if necessary.

We now learn that the Supreme Court of the United States has handed down a decision to the effect that an advertiser is guilty of fraud if by exaggerated advertising he secures business, even tho he gives value received. For example, a real-estate agent

may make certain plausible but impossible claims concerning the productiveness of lands he advertises. He makes sales, and the properties are worth the price paid for them. But according to the Supreme Court it is a fraud if that advertiser makes exaggerated claims that are not true, and a fraud order may be issued against him, shutting him out from the mails even tho the price charged is fair.

The Rural New-Yorker, in commenting on this decision, says, "It certainly squares with common honesty and decency in business transactions. Too many otherwise perfectly honorable concerns consider they are licensed to make all sorts of unwarrantable claims in their advertising so long as they are giving fair value for the money they received. We are glad to see the Supreme Court put the stamp of dishonesty on unwarranted advertising claims."

We hereby give notice to our advertisers that we shall exercise our discretion in removing objectionable statements — statements which, in our judgment, are calculated to catch customers, even tho those customers receive full value for their money.

Granulation of Comb Honey; the Results of an Experiment Covering Three Months

WE believe it is a generally recognized fact that honey, either comb or extracted, if subjected to *variable* temperature will granulate more readily than the same honey kept at a constant temperature, either high or low. It has also been proven beyond question that a cold atmosphere is much more conducive for making honey go into a solid state than a warm one.

To demonstrate the first proposition, we made up a case containing a few sections from the West, a few from the middle West, and a few from the East, of clover honey. The lot was put indoors and outdoors every day beginning Feb. 1 until last week. Results: One of the samples granulated solid; the other two remained entirely free from granulation. Contrary to expectations, the two last named did not granulate in spite of the extremes of temperature during the February, March, and April weather almost down to zero at times, and up to 80 or 90 at night. This puzzled us not a little until we remembered that those three lots of honey had been kept prior to that time and continuously at a temperature of 90 F., since the first of November. That high temperature, without any variation, had put the honey in a state where any subsequent

treatment would not be likely to make it granulate. While one of the samples did turn to a solid condition, the other honey remained as liquid as when produced, and was in a fine condition.

This brings out one point that is worth considering. A long-continued temperature of 95 or 96, or even 100, for two or three months, may insure some grades of comb honey against granulation even when subsequent conditions are favorable.

It is a well-known fact that, when *extracted honey* is heated to 130 F., and kept hot for two or three days, it will remain liquid much longer than the same honey if heated to 160, and kept hot for only about an hour. By prolonging the period of a lower warm temperature, almost the same results are secured for comb honey apparently. The lower the temperature down to, say, 70 F., the longer it must be kept at that point to insure against granulation.

Taking these facts into consideration, the comb-honey buyer will seek to keep his honey in a warm or even hot room up to about 100 degrees, and hold it there to prevent early granulation the following summer or fall.

The Next Edition of the A B C and X Y Z of Bee Culture and the Frenchman who Thought all the World could Parlez-vous

WHEN a certain Frenchman left his native country he supposed that all the rest of the world could *parlez-vous* simply because he could. When the authors of the original A B C book put out the first editions of it they assumed that certain fundamentals in beekeeping were understood by every one; and the result was in some cases they shot a little over the heads of many of their readers; or, as the inimitable Hasty once said, they got the hay so high in the rack that some of the sheep could not reach it.

The new edition takes up the minutest details so that the beginner cannot fail to have a general groundwork of the business before he goes into the general art. For example, no previous edition has had a general article on "brood," altho many of the articles had something to say about it in a general way and considerable about foul brood. The new edition, now on the press, has a chapter on the subject, attempting to define what normal brood is in its different stages; how worker and drone brood may be distinguished, and how the cappings of either can be distinguished from the cap-

pings of comb honey. Of course, the veriest tyro in the business ought to know the difference between capped comb honey and capped brood, and, like the Frenchman, we thought everybody did. But if one has never seen either, how is he to know? The pictorial representation with the legend beneath, taken from our next edition, attempts to make this plain. See page 488, this issue.

Education and Diplomacy versus the Strong Arm of the Law in Handling Foul Brood

ONE of our Ohio foul-brood inspectors, A. C. Ames, was in to see us the other day. In speaking of the foul-brood situation he remarked, "I have come to the conclusion that we need in Ohio and everywhere else a campaign of education. Foul brood is scattered all over the state. Many beekeepers are careless and indifferent, and so, of course, they eliminate themselves in time, but they leave behind them sources of infection. There are beekeepers of another class who are inclined to defy authority if the strong arm of the law is brought to bear to compel them to clean up. In that case they may or may not make trouble by scattering the disease out of pure revenge." He mentioned one case where one of the best beekeepers in the state is located. This beekeeper keeps his yard free from disease. Not far from one of his yards is a man who harbors disease, and apparently always will have it unless the state compels him to clean up. Said Mr. Beekeeper, "Oh! let him alone. I can keep disease out of my yards as it is; but I couldn't if he deliberately tried to put it there." If the inspector brings the law to bear, the other fellow will naturally infer that his neighbor "squealed" on him.

"One who has foul brood and who would resent compulsion has a powerful weapon," said Mr. Ames, "and diplomacy is far more potent with such fellows than the strong arm of the law, and a good deal safer for beekeepers in the immediate vicinity."

Incidentally Mr. Ames is one who believes we are going at the foul-brood situation in the country wrong end to. He holds that every state should have a campaign of education. This can be done by sending out extension workers who will instruct good beekeepers how to prevent and control disease, as the other fellows will eliminate themselves in the near future. The Ohio chief inspector, Mr. Shaw, hopes in time to get this kind of extension work started. If he does he will have the gratitude of the beekeepers of the state. Speed the day!

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



J. L. BYER, you are quite right, p. 430, in saying that "dysentery (?) " (isn't diarrhea the better word?) can be caused "without any cold weather, and by so short a confinement as five or six days."

I've known bees to spot their surroundings in summer, with no confinement whatever, apparently because badly scared. [The word "diarrhea" is more accurate than "dysentery;" but the latter term is a little smoother, and has become so engrafted into our literature that it seems impossible to make the change.—Ed.]

"FIRST covering the entrance with netting so that the bees would not fly out, the hive was placed in the house cellar," p. 398. Some beginner may understand that to mean that it is all right to have bees fastened in hives in cellar, which would be a mistake. Of course the netting was removed after the bees quieted down.

MRS. ALLEN, p. 428, either you have made a new observation or you haven't observed closely enough. It's the first mention I've seen of bees handling eggs with their antennæ instead of their jaws. [Evidently Mrs. Allen meant "mandibles" instead of "antennæ;" because, so far as we know, the latter are never used for any sort of work in the hive.—Ed.]

If you have only a small amount of cappings, and want to drain all the honey out of them, here's a kink worth knowing. After letting them drain perhaps a day, put the cappings down cellar to finish draining, and the honey will become thin, and drain to the last drop. You can feed it to the bees, or use it for vinegar. An easier way is to let the bees clean the cappings. Put them in a shallow box, put something under one side of the box so as to make it slanting, and as often as the bees dig the cappings level turn the box around.

A. I. ROOT, in speaking a word in appreciation of the dandelion, p. 463, you might add a word as to the beauty of the flower. One who can look closely at it without admiring it is lacking in appreciation of the beautiful; and a bank thickly studded with the bright blooms is a thing to delight the eye. [A lot of good people in Medina think we scattered dandelion seed; in fact, practically every beekeeper, because his bees pollinate the dandelion blossoms so that all the seeds mature, is accused of the same thing, whether he lives in Medina or else-

where. It is these very people who see anything but beauty in something that requires constant warfare to keep it off a lawn.—Ed.]

R. F. HOLTERMANN, you say, p. 405, that "Colonies have been found with the swarming impulse week after week, altho I continue to break down the cells." That sounds as if you could prevent swarming by continuously killing cells. With me that's the unusual thing. Either the colony gives up starting cells after about the second round, or else it swarms without waiting for cells to be sealed. If I persist in killing, a persistent colony will swarm with an egg in a cell. You say, "If I could have foreseen this I would have shaken . . . as we all know such a colony will not gather the usual amount of surplus honey." By "such a colony" I suppose you mean one kept from swarming by continuously killing cells. Of course such a colony will not equal one that never thinks at all about swarming, but I don't notice such a great letting-up in colonies where cells are killed. At any rate, if I could keep a colony from actually swarming by continuously killing cells, I'd never think of shaking, for I believe shaking would interfere with the crop more than the sulking of swarmy bees, if they can be kept from going on to actual swarming.

"QUEENS dearly love to lay eggs in new comb," p. 437. My observation has shown that bees decidedly prefer old black combs for either eggs or honey; yet several times I've seen the statement that they preferred new comb, so that it is possible that, under some conditions, they do. Who can tell us what the conditions are? I can think of one; and that is, when drone comb is greatly desired and new drone comb is built. In that case I've known eggs to be laid in new comb a long way from the brood-nest. [We have noticed that queens seem to have a liking for new comb, particularly that built from foundation. It is not the newness of the comb or wax, but, rather, the physical condition—the convenience of the shallow cells. We have very often seen a queen take up with a partly drawn comb from foundation, and supposed that the reason for this was one of pure convenience, both for laying the egg and for determining whether the cell is eggless or broodless; for the queen in this neck of the woods always makes an inspection of the cell before she lays the egg. She will turn around unerringly and deposit the egg in the cell inspected.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



I have just opened several hives that had European foul brood last year, and were treated by making queenless for a time. Some were given a young queen at the proper time. The brood in all looks healthy and free from disease.

That item in editorial, page 302, April 15, containing the experience of E. D. Townsend in advertising, viz., that the advertising that brought best results was in women's journals of national circulation, is well worth remembering.

I notice that O. L. Woodward reports on page 359, May 1, that European foul brood spread to those colonies immediately adjoining the one first discovered. It looks more and more as tho it spread from nursing bees entering the wrong hive.

"Florida Sunshine!" Hurrah! A new department in GLEANINGS! This will be particularly enjoyable in that portion of the year when we have little sunshine in our northern skies. I spent nearly two days in Mr. Baldwin's charming home among the pines three years ago, and I believe no better man could be found for this department in all Florida than he.

A little cloth-covered book of 64 pages has come to my table entitled "The Value of Sweet Clover." It is, I believe, the best-arranged treatise I have seen on this subject. It is by J. F. Sinn, of the Berry Seed Co., Clarinda, Iowa. The price, however, \$1.00, seems quite too high when you can get a well-illustrated bulletin containing even more matter by sending our cents to the International Harvester Co., Chicago.

That little poem by Mrs. Allen, page 330, is well worth reading—not once nor twice, but many times, until we can catch its meaning in something of its fullness. The subject is one of the smallest objects in which we are interested, and yet we cannot comprehend the mysteries and wonders it holds in its tiny shell. And then to think that there are a thousand things all about us just as wonderful. Surely wealth is not altogether in gold and silver, or notes and bonds, or other material things.

On page 167, Feb. 15, H. L. Case, F. Greiner, and W. F. Marks recommend past-

ing a label on each comb of honey, stating that "this section of honey (14 oz.) equals in food value 24 oz. of beefsteak, 30 oz. of codfish, 20 eggs, 11.2 oz. cream cheese, 2 quarts of milk," the whole costing \$1.52. Now I have had a very high opinion of the food value of honey; but this beats me. Would it not be better to say, "This section (14 oz.) of honey equals in food value any one of the following"—24 oz. of beefsteak, etc.? or put it as it is in the *American Bee Journal*, "14 oz. of beefsteak or 30 oz. of codfish," etc.

Our friend Doolittle discusses drouths, page 144, Feb. 15, in an interesting manner, but does not tell us how they can be prevented. Like the poor, they are likely always to be with us. One hundred years ago this very year there was an unusual drouth in this section, with unusual cold, so it is handed down as the cold dry summer of 1816. A good crop of winter wheat matured that kept the people from starvation, and so it has been ever since—seasons of drouth and seasons of unusual moisture. In 1860 we had little rain in this locality until late in July, and stock had to be reduced to one-fourth the usual amount to winter. Almost every colony of bees died, and yet seed time and harvest have not failed, and we seem to get along fairly well.

I see two editorials in GLEANINGS for May 1, along the line of sweet clover. With the eye of faith the editor sees our country "from the Atlantic to the Pacific, and from the Great Lakes to the Gulf," as a land flowing with milk and honey. He says that badly cured sweet clover fed to cows causes them to give more milk than other hay. The increase in the flow of milk from cows fed on this once despised weed has been noted in these parts, and it is a most important fact. As the country grows older and our cities larger, the demand for milk increases by leaps and bounds. Already the city of New York sends a daily train as far as northern New York, and on down thru Vermont, 350 miles, and loads up with milk packed in ice for the population of the city. Large quantities of milk or cream are used for ice-cream—a modern demand. Large amounts of cream are separated and sent to the cities daily, in addition to the milk. It looks now as tho the value of sweet clover would come quite as much from its ability to increase the flow of milk as the flow of honey.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



While Dr. Miller and others had a time deciding whether queens at a certain stage of their lives "quaked" or "piped," *we* *unses* have produced a crop of over 35,000 pounds of bulk comb honey. A difference in locality.

Rain, rain, rain, during the last several weeks, and pretty general over the greatest part of the southwest, except in the lower Rio Grande Valley. Altho preceded by a long drouthy period there has already been obtained thruout the mesquite sections a good crop of early spring honey from this source. Prospects for our usual honey crop are excellent too.

While the beekeepers of the North were determining whether their bees would come out of winter quarters successfully, beekeepers of the great Southwest were busy—head over heels—making a honey crop from the mesquite. This began to bloom in March, a month earlier than usual, and yielded an excellent crop of very fine white honey—another matter of locality.

It is interesting to note the great popularity of the automobile in beekeeping now. The change has come only during the last few years, altho a few beekeepers used them before. We could not get along without one. Our only regret is that we did not procure one several years ago, as we know now, from careful estimation, that we might be several thousand dollars better off if we had.

Rabbit-spacing of frames as used by the late L. Stachelhausen is still kept up by his widow, Mrs. Stachelhausen, and her son-in-law, Ed. Dietz, who together continue the bee business formerly established by our old veteran "Father of Southern Beekeeping." Folded tin rabbits, notched to hold each plain all-wood shallow frame, are preferred by them to the self-spacing-frame feature. They operate more than 600 colonies.

By our smoke method, and shaking out the few remaining bees as the supers are jerked off and the hives loaded immediately, it is possible to take off *more than a thousand pounds of honey in half an hour*. The writer holds an actual record of 1140 pounds of honey removed in exactly 28 minutes, a young lawyer friend, then a beekeeper, keeping the time.

"All work and no play makes Jack a dull boy" is an old saying with much truth in it. This applies to beekeepers too, and other folk. It is gratifying to note the change in GLEANINGS, that of devoting more space to the poetical and the comical side of beekeeping instead of giving only the good solid matter. Mrs. Allen and J. H. Donahey are both aiding in this direction by the contributions along their respective tendencies. This "kind of stuff" may not appeal to everybody, but some of us like a change from the ordinary once in a while.

There has already been trouble in the Texas honey market this early in the year. Certain parties who felt they were not getting their share of the honey trade, consequently cut prices below the market figures. This was followed by others; and, as a result, market prices dropped one cent a pound all around. Such has also an ill effect in that the buyers have become reluctant about handling the product on account of the instability of prices, and so the beekeepers suffer. Shall we ever be able to get together, and, thru organized efforts, save our industry from these ruinous proceedings?

PREVENTING GRANULATION OF HONEY.

If every beekeeper would heat the extracted honey to a temperature of about 150 F. before sending it to market, there would be less complaint from dissatisfied customers, and a better sale of honey. Our experience has taught us to pack not a single package of honey, extracted or bulk comb, without first heating the liquid honey that goes into the finished package. While this does not insure against granulation again later, the heating does delay this long enough so that the honey may be sold and used before it might granulate again. This enables us to sell more honey instead of finding stocks of granulated honey on hand that cannot be readily sold off on account of the objection found to it on the part of the customers. There are a few consumers who actually prefer honey in the granulated form; but the great majority believe all honey in this state to be old honey, and not fit to use. Much of the most beautiful white honey this spring has caused trouble of this kind because it showed a great tendency to granulate within a few days after it was extracted. Heating all that we shipped out has prevented us any trouble of this kind, however.

E.G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



At present writing, May 7, the saw palmetto (called also scrub palmetto (*Sabal megacarpa*) is just coming into bloom, and yielding a pound per hive a day in the neighborhood of Eau Gallie East Coast, about fifty miles below here.

It will be in full bloom here by the first or second week in June. Weather has been very dry, but that is no criterion of the yield. The year when the bloom looked the poorest, the yield was the best ever known. From six to eight pounds daily per hive has been reported from this source, and eight or nine is not unknown. This palmetto grows all over the "flatwoods" (the low pine-lands that overflow more or less during the rainy season), also along all water-courses, and on the edges of all heavy hammocks. The latter places are best, for there the bush grows to the height of eight feet or more, and yields best. The stunted sort in the flatwoods does not yield so well. Too much rain during bloom produces a mildew; too great drouth or dryness in the air, too much heat, produces a parched bloom that withers soon. Both conditions are detrimental to nectar secretion. When all conditions are right, however, it yields profusely, and is the finest of table honey. Some think it the very best in the state. It is lemon yellow, thick heavy body, and aromatic both in taste and smell, wonderfully appetizing and delicious. Having had two poor years in succession from this source, it looks as if we might get a yield this year, or, as the vernacular has it, "We belong to have a good bloom."

* * *

"Even an error may give text for a sermon." I confess, when I read "Don't we have good-looking covers?" (Mrs. Allen, page 182) I was ready to shout, "Yes, if they are metal covers;" but further perusal of that department contribution showed me that our poetess was thinking of one kind of covers and I of another. But, all the same, I must give that sermon, even tho a mistake led up to it.

Florida, above all other states, needs metal-roofed covers. For sixteen years I have tried all the kinds of covers ever tried by any mortal man. I have used wooden covers, put together with kerfs, with grooves and tongues, painted joints, etc. I have used tarred-paper covers and roofing-paper covers. I have never yet found a brand that would not leak sometimes, and many of them all the time, some very badly. A bad case of mildew, warping, and decay is the result to the cover that leaks, and

mayhap worse to the colony. As a roof is the most important part of the house, so it is of the hive. If that is poor, the whole is a failure, no matter how good in itself the rest may be. Here the summers are in the rainy season. We may have bright hot sunshine for half a day, and downpouring rains the rest, then steaming heat again. You can imagine how an ordinary roof suffers—even a roof that would pass as a pretty good cover in the North.

I find galvanized iron better than tin. If you paint the former, all the better; if you do not get around to it in time, it suffers little, if any, for a good while—no rust, no warping, no leaks, and last, but not least, no blowing off. I used to be annoyed in outyards, or at the home yard, when absent, by the covers going rolling across the yard in some of our summer high winds. Now, with the metal-roofed telescoping covers all is solid, secure, and dry as a powder-horn. I can leave a yard for months, and know that all is absolutely as dry and secure as the heart of the pyramids! "I care not what others may say; but as for me, give me" metal covers or give me none! While I know some advocate, even here, a cheaper cover, sooner or later they will regret it. I nail the metal part down over the telescoping side and ends with one-inch clout nails that clinch easily. I have devised a way of placing the cover over the projecting edge of the sliding leaf in my saw-table, and clinching the nails on the iron table. It takes but a few moments to go over a hive thus. The nails are driven at an angle, so as to enter the sides and ends, not into the board top merely, under the metal, thus welding the whole into almost one piece that can be thrown and banged around endlessly with no danger whatever of breakage. And then, too, these covers can be piled up so neatly, take little room, can be used for piling hives on, act as a seat in the yard, stand firm when so piled, do not rock and slip around as sloping covers do. They are exact and symmetrical, and practical in every way. It seems to me for our climate especially, they are the "last word" in hive-covers. I would strongly advise all who are beginning with bees here, or who may not be entirely satisfied with the sort of covers they are now using, to give these metal-roofed covers a trial, convinced as I am that they will thence use no others. They cost a bit more, but are well worth it. To come back to the starting-point, you can still exclaim, "Don't we have good-looking hive-covers?" for none give a neater look to a yard than these same metal telescoping covers.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Thirty years ago today (May 22, 1916) I hived my first swarm of bees and may be said to have entered the bee business on that day, for I have owned bees ever since. One of the reflections that came to my mind in a most forceful manner was this: "What should be our attitude toward the beginner?" As a matter of justice and fairness toward the amateur there are many things we might say to him that would tend toward discouragement on entering the bee business as an occupation. From my own experience and observation I am ready to give some frank words to the amateur. I do not believe there was ever a more verdant youth than I at the beginning of my beekeeping experience—that is, so far as any knowledge of the bee was concerned. I had sufficient enthusiasm to keep pace with any condition which might arise; but the necessary knowledge was lacking. If, instead of my uncle having given me a lot of second-hand hives, with a little encouragement, he had advised me to get rid of those bees as quickly as possible, and avoid the fever for all time, I should have been financially better off at the end of the first eighteen years. It is not my wish to say that I could not have made a success of the bee business in those years had I had experience. I did not know how, and my time was too much occupied with fruit and potato growing to give the bees the required care. Then, too, I was trying to raise comb honey every year, regardless of the season, with the result that my loss in sections was very heavy, and my output of nice comb honey very small.

Those conditions prevailed until my bees were becoming less and less in numbers, the other farmwork having divided my time in such a manner that the bees were the last to receive attention. It was a dead loss to me, and I thought many times I would give the bees up entirely. But that old feeling of love of nature would assert itself, and I could not resist the fascination of the bees. Now, here is one of the points I wish to make clear. The amateur with the love of nature in his heart, and the bee a part of this devotion to nature, will succeed when the amateur who goes into the business simply as a business asset will fail. It takes a lot of courage to face a series of poor years (and consequently small crops), and the fellow who enjoys the business will hold on when the one who looks only for money will quit.

As a matter of fact I am thoroly of the

opinion that at least 90 per cent of all those who have entered the bee business more or less extensively have failed, and the greater per cent of those remaining have made little more than the amount actually invested. The fact that I with many others had failed in my early efforts to make a financial success of the business does not prove that all was lost. The knowledge of the bees is worth a consideration as a part of one's education, and may in after-years be utilized when circumstances have placed both opportunity and necessity in one's path. I have come under this same chain of circumstances, in that I have for the past twelve years found it both desirable and profitable as well as a source of supreme pleasure, to continue the business. The bee business, in order to support a family in the proper manner, must be carried on in an extensive way or the profits from the good years will not make up for the deficits of the poor ones. So the amateur who has visions of extensive operations and a large bank account must first take into consideration that all is not a bed of roses, and that the dark days must be lighted with the sunshine of the bright days in the form of surplus funds saved from the good years. It would pay any Eastern beekeeper to spend a year in the West with some of the big honey-producers, learning the business. That may sound a bit like a "slam" at the Eastern beekeeper, but it is not intended as such. The fact remains, however, that the ideas of the Western beekeepers are so much bigger and broader that one learns by leaps and bounds when under the influence of the Western spirit. I could return to the East now and make dollars where I was not able to make cents when I came here—not because I had not studied all of the technical terms in beedom, and knew all of the fundamental workings of the bee, but because I have learned better than to try to compel bees to put up nice comb honey when the flow is not sufficient to accomplish the object, when the efforts of the bee could have been turned into a commercial value by having extracting-combs to hold their labors during the slow flow.

The amateur should be given as many of the facts in connection with the ups and downs of the business as possible; then if he wishes to try his skill in the business he does so at his own peril. But the brightest side should appear only with the dark side, for they will both have to be faced sooner or later, and their early acquaintance will make the way less fearful in the end.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



CLIPPING QUEENS' WINGS DETRIMENTAL TO THEIR PROGENY?

"Did you apiarists who advocate clipping the wings of queen bees ever stop to think that such a course might prove detrimental to their offspring, the workers? I should fear that such a course might in time be the means of producing worker bees with weakened or deficient wings, and thus the 'best bees' we are working for might be crippled in wing power."

This is something that was written about quite generally thirty to forty years ago, as at that time natural swarming was the general mode of increase, and with unclipped queens swarms were liable to get away. To obviate this, the clipping of every queen was advocated by beekeepers in all parts of the world. I remember at that time this same question came up and one writer told us that he had worked along that line for forty years with his sheep, clipping the tails from his lambs when they were small in the hope of getting a breed of tailless sheep. In spite of his desires every lamb that was born always had a perfect tail. I know that wonders have been accomplished by way of changing the color of sheep from the black of the original to that of white, and also the character of their wool from coarse to fine, and that of the form of the Southdown with a smooth skin to that of the Merino with its fine wool and folded or wrinkled skin.

It seems to be quite generally assumed that it would be as easy to change the characteristics of the worker bee by the selection of queens and drones as it would be to change the characteristics of other domestic animals by the selection of parents. In the latter case the parents transmit to a greater or less degree their habits, faculties, peculiarities and desires to their progeny, but that can hardly be said in the case of the honeybee, especially when the progeny is a worker. The worker bee presents something along the line of heredity somewhat different from any of our domestic animals. Here is something which our evolutionist friends have not seen fit to tackle. The worker bees are passionately fond of gathering and storing honey and pollen, defending their homes with energy and patriotism as well as performing all the other work that falls to their lot, yet none of their ancestors on either side for untold generations has had either the desire or the ability to defend their home or lay up stores for winter or a rainy day. I am not an evolu-

tionist, but it seems that some of our past theorizing in regard to working for the best bees may have been of little value. Is there not something here that should receive attention in discussing the question of breeding bees up to the highest standard in respect to honey-gathering, wax secretion, white capping of combs, hardness in wintering, or eliminating disposition to swarm, or weakening the workers' power of flight by clipping queens' wings? He who should undertake to create so great a difference among worker bees in outward appearance as there is in domestic fowls between the monster Brahma and the diminutive bantam would doubtless be considered rash. Then why should he be thought to stand on safer ground when he undertakes to make as great a difference among colonies of bees in respect to desire to swarm as there exists between the Rhode Island Red and the White Leghorn in respect to inclination to incubate? And as the inclination to sit is far from being bred out of the Leghorn, how much less than reckless should he be thought who undertakes to breed out of the honeybee the desire to swarm altogether? Is this not also applicable to the attempt to lengthen the tongue of the worker bee so that one or two one-thousandths of an inch may be added so that the nectar in the red-clover blossoms can be reached? To me it has always seemed that the reaching of the nectar in the red-clover bloom could far more easily be obtained by a crossing of the different clovers thru pollenization or selection of those stalks for seed from roots giving the shortest corolla. If the red clover bloomed here to an extent sufficient for seed I should have tried such a selection years ago. But thru hundreds of very minute worms taking their abode in the red-clover heads just prior to its blooming, few if any corollas appear.

But to return: By a like course of reasoning, as with the poultry, what possible ground for fear can there be that clipping the wing of a queen will weaken the power of the worker progeny to fly? If the fact that for many thousands of years at the very least the queen bee as well as the drone has neither exercised nor had the power to gather honey and pollen from the flowers, has neither destroyed nor weakened the desire and the ability of the worker bee to perform that labor, we may safely dismiss any fears we may have harbored that the clipping of the queen's wing will in any way affect the usefulness of her workers.

GENERAL CORRESPONDENCE

PAINT YOUR HIVES EVERY FIVE OR TEN YEARS

BY E. S. MILES

"There are two sides to every question," altho the other side to some questions is rather small. To paint or not to paint is one of these; and not to paint is, in my opinion, decidedly the small side. It is almost universally believed by enterprising and progressive people that painting wooden buildings pays, not only because it adds to the life of the building, but it keeps it in good condition. A well-painted building will shed water in a wet time, and not warp apart in a dry time. Then well-painted, nice-looking buildings are an asset to any place, please the eye, give satisfaction, and are an incentive to enterprise and thrift. But, somebody says, we are talking of painting hives, not buildings. However, the above applies just as well to hives; and, in addition, the hive, standing as it does near the ground, usually with grass around it, in a very damp place in wet weather, is even more in need of protection from the elements. Before we leave the subject of the desirability of painting, whether buildings or hives, let the reader take a trip, in imagination, thru any settled community. Is it not universally true that the buildings of the prosperous, enterprising people are invariably kept well painted? Which is the place containing a tenant, or a poor man struggling to make a start, perhaps, or the booze-fighter or loafer? If it is not the place with old unpainted buildings, porches partly down, perhaps several window-lights replaced with a bunch of rags, then the conditions are different from any I have traveled thru.

Some one says that a hive is different—there is moisture in a hive, which paint will not allow to escape, and that will be bad for the bees. I am not ignorant of the fact that we have two eminent authorities who think bees do enough better in unpainted hives to offset all the advantages of painting and more. With all due respect for them, however, I do not agree. There is a chance that, further east, as the climate is more moist, there might be a difference in favor of unpainted hives; but it would seem that the need for protection would be also greater. But, speaking from my own observation and experience, I know that unpainted hives *here* deteriorate very rapidly. The covers warp badly, the body and floor joints spread and rot. I have had a good many colonies in unpainted hives, having pur-

chased many such, and keeping them from a month or two up to a year in some cases. In addition I kept one colony in an unpainted hive for many years, for the sole purpose of seeing what advantage it was to the bees. I can say positively that I was unable to see any advantage whatever in the unpainted hive. I believe the moisture can be allowed to escape from the hive in more effective ways than thru the walls. I should not want to be confined to that way alone, I am sure; and if I can let it escape in other ways I do not need that way.

If we have made the desirability of painting apparent, let us consider a few points in painting. Painting a hive is similar to painting any woodwork. The hive must be dry, and free from dust and dirt. This is necessary for a lasting job of painting, and especially so on a hive, as they are rather hard on paint. If there are knots or pitchy places they must be painted over with shellac first, and allowed to dry. Any cracks or joints not tight should be filled with putty after the first coat before applying the second. Three coats are necessary on new work for a first-class job, and the paint should be thinned with pure linseed oil for the first coat. I don't save on "elbow grease" in applying it. Rub it in thoroly. Let it dry several days between coats, and be sure it is fairly warm when putting on the second and third coats. I prefer a good grade of ready-mixed paint rather than white lead and oil. I think it sticks better, becomes harder, and, according to my experience, is more lasting. There is a difference in ready-mixed paints, however, and it is advisable to go slow until you know you have a good one.

In repainting hives after being in use five to ten years, more skill is required to get satisfactory results. Some have said that hives may be repainted while in use. The giver of such advice is unskilled in painting. You cannot repaint a hive while it is in use, and yet *do a good job*. Old hives must be thoroly scraped or sandpapered. Any old paint that is loose enough to come off with a good scraper in both hands of a vigorous man *must come off*. Any propolis must either be burned off with a torch or, if not badly daubed, after thoroly scraping, a coat of shellac put on before painting. The bottom-board must be thoroly cleaned and painted on the *bottom* as well as the top.

"That which is worth doing at all is worth doing well" applies especially to painting a hive; for if so painted, and repainted every five to ten years, a hive will never have to be replaced on account of age. A neighbor of mine is now replacing hives that are 12 or 15 years old, as he says they

are too rotten to stand any manipulating. My first hives, purchased 23 years ago, are as sound and tight as ever. I have purchased many unpainted hives not in use 20 years, that I have thrown away because of rotting around the edges so that they were no longer bee-tight.

Dunlap, Iowa.

WHITE CLOVER AND ITS DISTRIBUTION

BY JOHN H. LOVELL

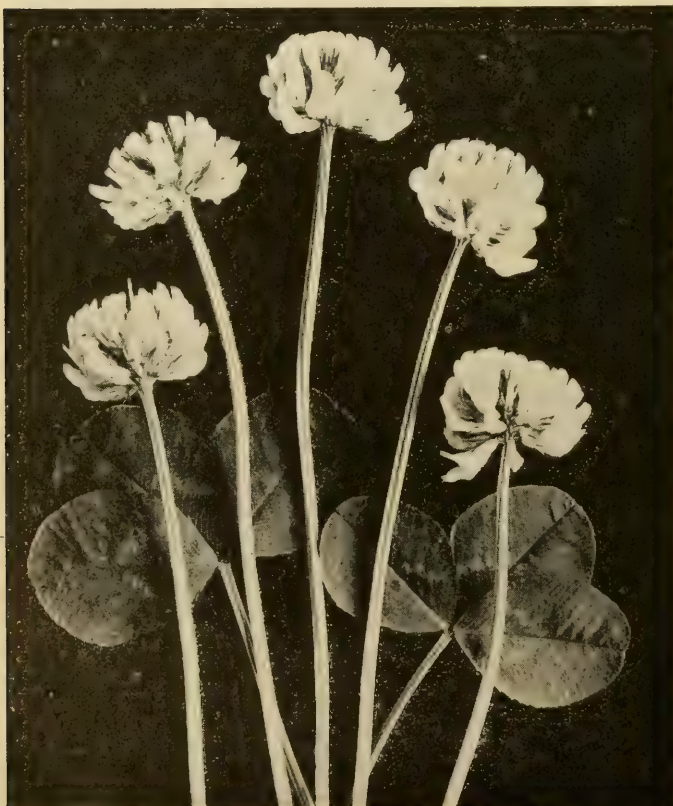
[The following by John H. Lovell is from the new edition of the "A B C and X Y Z of Bee Culture." We are glad to give it a place in these columns at this time, for we believe the illustrations of this celebrated honey-plant are finer than anything that has ever been reproduced before.—Ed.]

In the central and eastern states no other honey-plant is so universally known as white clover, and white-clover honey is the honey *par excellence*—the honey with which all other honeys are compared. It is a delicious white honey of the finest quality. While not so thick and heavy as goldenrod nor so pronounced in flavor as buckwheat or basswood, it yet possesses the qualities which satisfy the largest number of consumers and fills most perfectly the demand for

a table honey of the highest grade. It is given the preference by most purchasers, and the highest encomium which can be bestowed on any honey is to pronounce it equal to that of white clover. As a confectionery its appearance is most attractive, while for medicinal purposes it is unsurpassed.

In general in America where it is sufficiently abundant white clover usually yields excellent honey harvests, which are not far

from surpassing all records. In 1913, at Marengo, Illinois, Dr. C. C. Miller obtained from 72 colonies, spring count, 19,186 sections of chiefly white-clover honey, or an average of 266.47 sections per colony. The three best colonies yielded 390, 395, and 402 sections respectively. This phenomenal surplus was largely due to a most favorable season consisting of a succession of hot humid days, altho the strain of bees and the care they received were important factors. The flow began about June 1 and continued until the last of August, the bees then gradually changing to sweet clover and heartsease. During this long even flow there were up to September 1 only two rainy days. At other times the rain came during the night, the weather becoming clear again before the bees were ready to begin work in the morning. In central Kentucky, in 1906, 115



White-clover blossom—first stage.

colonies stored 12,000 pounds of white-clover honey and increased to 240 colonies. From the same apiary in the following year the product was 30,000 pounds, while in 1908 drouth reduced the crop to 15,000 pounds.

The flowers of white clover are familiar to every one since the plant finds a congenial habitat in the vicinity of human dwellings. It carpets the lawns, fringes the paths and roads, and is common in the fields and pastures. There are in each head or flower-cluster from 57 to 89 small florets. At first all the florets stand erect, but as the marginal ones are pollinated they cease to secrete nectar and are bent backward and downward against the stem. By preventing useless visits this change in position is beneficial to both flower and insect. When they expand the flowers are white, but they often turn reddish after they are reflexed. The calyx is only three millimeters long, so that not only honeybees, but many other insects are able to reach the nectar. Honeybees also often gather loads of greenish pollen, altho this is not abundant.

DISTRIBUTION OF WHITE CLOVER.

White clover is very widely distributed in the north temperate zone of both hemispheres. The factors controlling the secretion of nectar are very imperfectly understood. While in the United States and England it is usually a good honey-plant, in France and Switzerland, in fact, throuth continental Europe, one may travel for several kilometers and not see a bee on it. At Rouen, France, during one day of white-clover bloom a hive on scales actually lost 300 grams in weight. In various localities in the United States it is also reported to be an almost total failure. At Plainfield, N. J., altho the ground is often white with the bloom a good flow is obtained only about once in ten years. One beekeeper says: "As an actual fact, the amount of clover honey is not measured by the quan-



White-clover blossom—second stage.

tity of bloom; for I have seen the fields white with an abundance of it, but only a fair crop. I can remember one year when we had a great scarcity of bloom, and yet we had a good crop of clover honey. I have also seen fields white with clover but no honey." In the southern and extreme western states white clover is of little importance to the beekeeper, not so much because it does not secrete nectar as because it is not sufficiently common. In many districts the climate is too dry. The nectar secretion also varies greatly from day to day according to weather conditions.

White clover is at its maximum as a honey-plant in what is known as the "white-clover belt"—that is, in the blue-grass region of Kentucky, in Ohio, Indiana, Illinois, Missouri, Iowa, southern Minnesota, and southern Wisconsin, Iowa, and southern Illinois being in the heart of the belt. Even here the nectar yield is often very variable. In some years it is enormous. In others no surplus is stored. At Richmond, Kentucky, according to Virgil Weaver, a normal year comes only once in every five years, viz., 1897, 1902, 1906, 1910. Two full crops

obtained in succession are often followed by several years when the yield is less satisfactory. This difference is largely determined by soil and climate. In wet clay ground in regions where the winters are severe the roots may be much broken and drawn out upon the surface, or the plants killed outright by repeated "lifting" caused by the alternate thawing and freezing of the soil. The destructive work of the frost, however, is much lessened by the natural mulch afforded by the dead vegetation found in waste places and in meadows, which have not been cropped too closely. Snow also offers excellent protection, and, when it covers the ground for most of the winter clover suffers little or no damage. Winter-killing from freezing in well-drained sandy soils or in warmer climate is practically unknown.

In Kentucky, Iowa, and the surrounding territory, where there are light soils, it seems to be well established that there will be a very small honey-flow if the preceding season has been very dry. If there is no rain after July 1 the drouth destroys the old plants of feeble vitality, checks the growth of offshoots, prevents the germination of seedlings, and retards the formation of an extensive root system with the result that there are few blossoms and little nectar the following season. This statement does not call for discussion since all herbaceous plants growing in porous sandy soil suffer if there is a large decrease in the normal rainfall. Altho the injury wrought by the drouth does not become apparent until the next season, it should not be attributed to winter-killing, but to the correct cause—the absence of sufficient moisture in the soil. But if there is a good stand of white clover in early spring, a drouth in May or June, if copious rains follow, will only retard the bloom and delay the harvest. I have seen clover parched by drouth in June, says a beekeeper, and not a blossom in sight. Then came a succession of soaking rains, and, presto! bloom and a crop of honey.



White-clover blossom—third stage.

Similar results have been described at London, Canada. An exceptionally dry fall after August 15 was followed by a dry spring until the last of May when a series of warm rains commenced which continued almost daily until about the twentieth of June. The effect was marvelous. July found the fields and roadsides a beautiful mass of white and alsike clover, and the honey crop was the best that memory can recall. A very cold spring may also cause failure, even if there is a normal rainfall. In 1907 in parts of New York the average temperature of April, May, and June was four degrees below the respective means for these months in other years, and there was no white-clover honey.

Cold rainy weather during the honey-flow will both lessen the quantity of nectar and prevent the bees from working on the bloom; for the best results there must be a series of warm humid days. Finally, where white clover has been grown indefinitely in the same fields the soil conditions may become deleterious. Microscopic protozoa may multiply until they destroy a large part of the beneficial bacteria, or the soil may become acid and require a liberal application of lime. Such land is said to be "clover-sick." Nearly all of northeastern Ohio and

the major part of Pennsylvania show a deficiency of lime. This is also true of Massachusetts where very little white-clover honey is produced. Progressive farmers are learning that by applying lime they can grow white clover and produce honey to the same extent as did their grandfathers.

There is no more important or interesting subject to the beekeepers of "the white-clover belt" than the life history of white clover and its problems. The plant is propagated both by seeds and runners which root at the nodes and finally become independent stocks. As in the case of the strawberry, a single plant may in a favorable season cover with its runners a circle of ground one or two feet in diameter. If these new plants winter uninjured they will

bloom the following season in the same manner as strawberry-runners. The older plants, as is again true of the strawberry, exhausted by multiplying both sexually and vegetatively, are easily killed by drouth or cold. When the ground is densely covered with an old growth there will be little opportunity for runners to root or seed to germinate; hence there may come years when there are few new plants to bloom.

White clover seeded in the spring will produce, if there is sufficient rain, a heavy crop of bloom in July and a fair amount of seed. Much depends upon locality. Clover raised from seed is more valuable for nectar the second season than during the first, but after that it begins to decline in vigor and to yield less honey.

EUROPEAN FOUL BROOD; PREVENTION AND CURE

Why Italians are Practically Immune. A Lemonade Cure

BY ALLEN LATHAM

European foul brood is caused by a germ; but this germ is not spread, as most people think, by its presence in honey, but rather by the bees themselves. Such a statement is difficult to prove, but no other theory, so far as the writer knows, will account for facts observed.

A colony may contract the disease thru contaminated honey, and possibly a great many cases arise thru this cause. If a colony dies of this disease, and is then robbed out, there is little doubt that the robber-colony may contract the disease. But after the disease once gets a footing in an apiary, its spread there is due to other causes.

An inspector once told the writer that, because of the congested condition of his apiary, he would have the time of his life if foul brood once got a footing. In clearer words, he gave me to understand that if one colony got it the adjacent colonies would soon get it, and that it would spread thus thru the entire apiary. When the disease did come the results were peculiarly contrary. My colonies are in pairs, and the pairs are scarcely two feet apart; but there were comparatively few instances in which both colonies of a pair had the disease, and there was absolutely no indication that the disease had spread by moving from colony to colony. Instead new cases would spring up in entirely different parts of the apiary.

This fact gave rise to the following reasoning: Since the disease does not travel by mixing of bees, nor by robbing, how can it travel? At just this point a happening

brought the explanation. At that time there were three or four cases in the apiary, well under control. For several days the bees had been kept in by cold winds and cloudy weather. The weather cleared in the night, and there came a heavy dew with fog. As the fog in the morning hours cleared, the bees flew by thousands, all eager for water. One could scarcely step on the grass without killing a bee, for they were sucking up the dew at a rate I never observed before. Within a fortnight European foul brood appeared in about a dozen more colonies. I could see but one explanation—namely, in sucking up the dew, the germs of the disease, there from the droppings of nurse-bees, found their way into several colonies.

This conclusion immediately suggested the advisability of sprinkling the grass in the immediate vicinity of the apiary with a weak solution of carbolic acid in order to repel the bees while in search of water. If made to go further in their quest for water, there would be a greatly lessened likelihood that disease germs would be gathered up with the water. I would urge every one this spring who finds an outbreak of this disease in his apiary to practice this control measure and report results.

From this the writer was led to study the spread of the disease in the colony itself. Incidentally he found why Italians are practically immune while blacks are not. At first in a colony only one larva (or at least a very few) is diseased. It is perfectly reasonable to assume that a single germ

may be the cause of the outbreak, and that only one bee can get this single cause. The larva or larvæ die; and, in the case of Italians, are quite likely to be picked up and carried bodily from the hive. The more economical black bee first sucks out the juices of the dead larva and then casts out the skin. These juices are then fed to the other larvæ, and the disease spreads rapidly thru the colony. Thus it follows that the Italian bee individually is no more immune to that germ than is the black. It is fatal to both; but the Italian, thru its different habits, appears to be immune.

One can easily see how the foregoing explanation will account for various aspects offered by this disease, and how it in particular explains the cure wrought by the temporary removal of the queen. It also suggests the possibility of medicinal treatment. If one can feed a mild disinfectant, why cannot the germs in the larval food be rendered innocuous?

The older readers will recall that Alexander of buckwheat-honey fame often stated that the coming of the buckwheat-flow did away with European foul brood. The writer thought that possibly there was some mild acid in buckwheat nectar which killed the germs of that disease. Why, then, not feed some mild acid to the bees? This was tried last summer. Some fifteen colonies were thus treated, and in every case the disease disappeared. Mild and severe cases all went, some quickly, others lingeringly. One week of treatment made a most marked effect in some colonies, while in others three weeks passed before improvement was marked. But they all finally became well, and are today on their old original combs, and, so far as known, perfectly healthy.

The treatment consisted simply of feeding the juice of one lemon daily to each colony. Half a pint or so of thin syrup was made, and the lemon juice stirred in. In other words, a rich lemonade was made and fed to the bees.

One of my strongest colonies became diseased, and in about ten days was so foul that one could smell it six feet from the hive. It was rank, fully thirty per cent of the larvæ being dead and rotting. After seven lemons had been given this colony there was scarcely one per cent of diseased larvæ, and in three weeks the colony was entirely well, and stored three supers of honey, equaling colonies which had not been diseased at all. The queen was not caged at all, and no treatment whatsoever was used except the lemonade.

In marked contrast with this colony was another. To make the case of this one

clear it is well to relate its previous history. In July, 1914, this colony was found diseased in an out-apiary. Its queen was caged. By an oversight nothing more was done to this colony till in October, when by chance it was discovered that the queen was still caged, having been there some eleven weeks. She was liberated, and the colony was brought to the home yard for observation. There were still nearly 8000 bees; and tho they were all at that time old, I decided to try to bring the colony thru the winter, and into condition without assistance. It wintered successfully, thanks to the longevity of Banat bees, for the queen was a grade Banat. Tho very weak in the spring of 1915, the queen soon had brood in two combs, and at first no sign of disease showed. But about the time the disease broke out in other colonies this one again became diseased. The old queen died, never having been very vigorous after her long confinement. Another queen of resistant strain was given the colony. Slowly but surely it began to pick up, but showed no marked gain till the bees of the new queen appeared on the scene. Lemonade was administered for about five weeks. By July the colony was clean, and it even went into the super, tho it stored no finished sections.

In speaking of this treatment with other beekeepers I have been told that it was not the lemonade, but merely the stimulating feeding that did the work. If this be true then so much the better. If we can cure European foul brood merely by the feeding of some six or eight pounds of sugar syrup, it should be generally known. I have not put the matter to a test, but I am satisfied that the lemonade will do it if the syrup alone cannot.

Shaking may be desirable in some cases, especially during a honey-flow when the colony can recover from the shock. But the lemonade treatment is desirable when there is no honey-flow. Colonies too weak to shake can be built up to strength, and a cure wrought by the expenditure of the price of a dozen or so lemons and six pounds of sugar. If one will, at the first appearance of the disease, use the carbolie acid as suggested as a preventive, then treat the diseased colonies with lemonade, he can bring his apiary thru the attack with very little loss.

Much has been said about the danger of the reappearance of the disease when the old combs are still in the hive. In my own experience I have found no tendency to that reappearance, the new cases being about equally divided between colonies which have never had the disease before and colonies

which have been treated without shaking. And as a further argument in the favor of the milder methods of treatment, I will say that the disease has reappeared in colonies which had been shaken the year before in the same proportion as there were strictly new cases. The shaking method is urged upon us on the strength of its certainty as a cure. Personally I believe it would be certain provided there was no disease in the neighborhood by means of which new outbreaks will surely come. So long as the disease is in a neighborhood it is foolish to practice the shaking method; but after the neighborhood is cleaned up, then I would advocate the renewal of all combs. Until the neighborhood is freed of disease, then I

say use the milder methods, inasmuch as they are much cheaper, entailing, as they do, less labor and financial outlay, and yielding as certain results.

It is evident that it would be well to require all colonies which have contracted the disease with stock which has shown resisting powers. By this, one can more certainly forestall fresh outbreaks of the disease.

All the foregoing relates to European foul brood. I have not yet been given an opportunity to test curative treatment to a colony infested with American foul brood. Will those who have the opportunity try the lemonade treatment and report?

Norwichtown, Ct.

NOTES FROM HOLLAND; OUR BEE-HOMES

BY J. H. J. HAMELBERG

Having noticed that black bees prevail in this country, the reader will not be astonished to hear that the bee-home most commonly found in Holland is the old-fashioned straw skep. We have them in all shapes—square, rounded off at the top, conical, round, with a flat head, etc. In some of them, as in the Gravenhorst skep, movable frames can be put; but in most of them the comb-building is left entirely to the fancy of the bees, some sticks being put inside for the support of the combs. A good many skeps now have an opening at the top, covered with a felt stopper for feeding purposes, and for obtaining a few pounds of comb honey in small wooden boxes which are put over this opening in a good season. But the primitive, conical-shaped skep without any improvement is as yet most commonly seen.

These skeps, altho altogether unfit for modern beekeeping, still offer some advantages. Bees winter exceedingly well in them, especially in the so-called thick-walled ones, and in hot weather they keep the bees much cooler than wooden hives, it being hardly possible for the brightest sun to penetrate these straw walls, nearly $1\frac{1}{2}$ inches thick. Most beekeepers can make these skeps themselves, and, during their leisure hours in winter, they so spend their time, thus saving the outlay for new hives, having the straw for the taking. Besides, no bee-home is handier for migratory beekeeping. A bee-proof cloth is fastened around the bottom with a few nails. In the evening the entrance is closed with a plug of grass, and the skep is ready to be taken any distance. For wintering, the beekeeper, once being sure of a colony having sufficient stores (to

ascertain which he uses a steel bar (Roman balance), or, if he has sufficient experience, he simply lifts the skep), does not take any other precaution than to fill the entrance with some mortar, and, while this is yet soft, bores a hole in it with a stout lead-pencil. Often even this filling with mortar can be dispensed with, when the bees plug up the entrance to a convenient size with propolis. Being always kept under cover (on scaffolds in sheds), skeps will last for years; and, when showing any signs of decay, they can often be repaired with a handful of straw and some binding material, or by plastering them with some adhesive substance, as, for instance, lime mixed with loam. New ones can be bought for about half a dollar apiece.

All these advantages, however, do not make the skep a fit bee-home for the modern beekeeper, and I rejoice to be able to say that hives are coming in use in this country more and more. We have some large apiaries, in which the skep figures only as a curiosity. Some prints of these have appeared in *GLEANINGS* from time to time. But apiaries in which *hives* figure by way of exception are much more numerous, the best evidence of this being given by our bee-markets at Veenendaal and Bennekom. At the last market at Veenendaal more than 3000 colonies were offered for sale, but a single hive was to be seen, all the colonies being in skeps.

The fact that there is no standard frame will prove a great hindrance to hives becoming more popular. Many dealers in beekeepers' supplies have their own patent hive, and each of them considers his make the best, of course. Besides, there are yet some German makes on our markets, which

augments the confusion and makes it hard for the less up-to-date beekeeper to make a choice.

Altho our country is not a large one, there is a perceptible difference in the climatic condition of some parts of it as compared with others, and the bee-flora especially is not the same in all parts of it. Locality, therefore, plays a role with us as well as in the land of the stars and stripes; but it seems that but little attention is paid to this fact by our dealers in beekeepers' supplies. Once their hives and fixtures have given fair results in one locality, they seem to conclude that their system is the best for the whole country. But the beekeeper may find out the contrary to his sorrow. Our beekeepers, not being men of means as a rule, have to stick to the hive first chosen, even if it is not satisfactory; and the worst

of it yet is that when, for some reason or other, a dealer goes out of the market, his hive and fixtures, as a rule, disappear with him, and the beekeeper is put to a strait for obtaining his supplies.

The skep has none of the above disadvantages. It answers as well on the low humid sea-coast as on the inland plains and heather-fields. Against the confusion in the choice of a hive stands the simplicity of the skēp; and it stands to reason that, as long as the majority of our beekeepers are not convinced of the advantages of hive-manipulation, the rearing of better queens, etc., the skep will hold its sway in this country. For this reason alone, if for no other, it is to be considered urgently desirable for our government to consider seriously the better instruction of our beekeepers.

Soest, Holland.

A ROOMY AND CONVENIENT EXTRACTING-HOUSE ON WHEELS

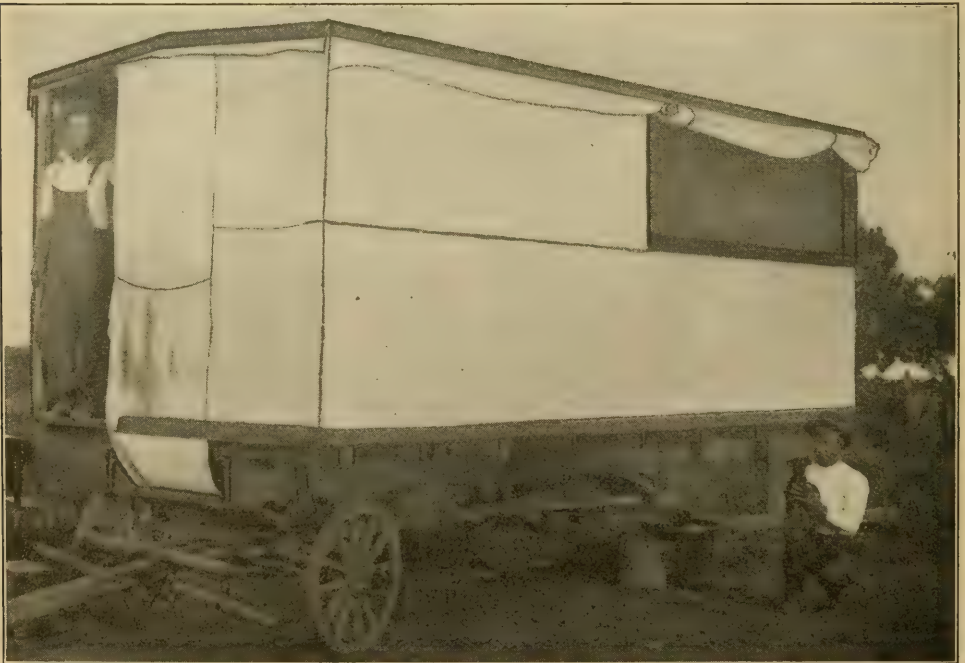
BY EARL C. BIDDICK

My movable extracting-room is 8 feet wide, 16 long, and 6 high. It is screened half way on each side, so that the canvas may be rolled up, making it a cool and comfortable place in which to work.

There are two screen-doors—one where I am standing, and the other on the right

side at the center, so that the honey-supers may be carried in from that side.

The 2 x 8's which rest on the bolsters must be the same width as the bolsters, to prevent it from tipping easily. The 2 x 4's are fastened to the rack with brace-rods, and square irons bolted.



Earl Biddick's extracting-wagon. A framework of 2 x 4 material is built on a 8 x 16-foot platform, and covered with canvas. There is plenty of room for engine, eight-frame extractor, uncapping-box, etc.

The engine and eight-frame extractor are placed in the extreme front end of the room, where they balance well on the wagon. I use two-ton springs for moving the wagon.

A hole is cut in the floor, and a pipe is laid to carry the honey out over the left

front wheel into a tank not over 36 inches high, large enough for a day's run of honey.

One of the main features of this wagon is that, as soon as one arrives at the yard, and blocks the springs, extracting can be commenced without delay.

Meridian, Ida.

SWARMING PREVENTED BY CONFINING A QUEEN WITH EXCLUDERS

BY J. H. BURNS

Some time ago I described my method of swarm control in GLEANINGS. As I had tried it on only a small scale I was anxious to know if any other beekeeper had used the method in a large way, but I was taken sick shortly after and stopped reading. I intended to experiment further on a larger scale; but as I am still unwell it is not likely that I shall ever be able to do much with bees again; therefore I have decided to describe again briefly the method, together with such alterations as I contemplated trying, in the hope that it may prove useful to some one else. I should be glad to know if this method has ever been tried before, and whether it is as likely to prove effective as my experiments indicate.

The method is a simple one. It consists in inclosing the queen on a brood-frame by covering it on both sides with excluder-zinc. It is better to use a wide-frame; but bulging the zinc in the middle will do. This is done just before the swarming season commences, and before queen-cells are started.

The idea is to cage the queen in the brood-nest, and yet allow the bees free access to her. This, I reason, will prevent formation of queen-cells, and the decreasing brood will induce the colony to give up all notions of swarming. I was able to test it on only a few colonies, but no swarm issued from any of them. Did the decrease in the brood

probably prevent swarming in this case? There is another advantage in decreasing the brood. The useless after-harvest consumers are lessened. Still, a trial with a few hives is not conclusive; but I give the results to the public so that others may reap the benefits if there are any, as I am not able to finish the work myself. Had I been able I would have liked to try caging the queen without using a comb; and I had even contemplated doing without either hunting or caging her majesty. Instead of the ordinary division-board I would have made a tight-fitting one with excluder-zinc. At the beginning of the swarming season remove this division-board from the side, and place in the middle of the hive, spacing the frames over. The queen can now use only four combs, and the brood will diminish a half. Whether this is enough to stop swarming remains to be seen. If not, a six-frame hive could be used, or even a four-frame. In these cases, brood-rearing would have to be provided for in spring by tiering as Dr. Miller and some others do with the eight-frame. Or a large hive with any desired number of these division-boards could be used. But this is all theory. Perhaps this would actually induce swarming by acting the same as contraction; but I think it is well worth a trial.

St. Marys, Ont.

AS GLIMPSED THROUGH THE CAMERA

BY H. H. ROOT

A man may be born smart, but he cannot be born with experience. Experience comes by the slow and sure process known to every one. As Josh Billings used to say, "Experience teeches a good skule, but the tuishun comes pretty hi." A man may learn the theory of swimming, and be able to go thru all the motions, but nevertheless he feels as helpless as any other individual when he first finds himself in deep water.

The beginner in beekeeping may understand the theory of beekeeping pretty well; but he is likely to feel himself in rather

deep water the first time he fully realizes that he is the owner of thirty or forty thousand vigorous bees. It is the purpose of the following set of illustrations to tide the beginner over that helpless feeling that comes to every one when he runs up against a problem which the books apparently ignore entirely. I make no apology for this elementary presentation. We were all there once. The older beekeepers, the ones whose hairs of experience are beginning to turn gray, will please skip the four following pages.



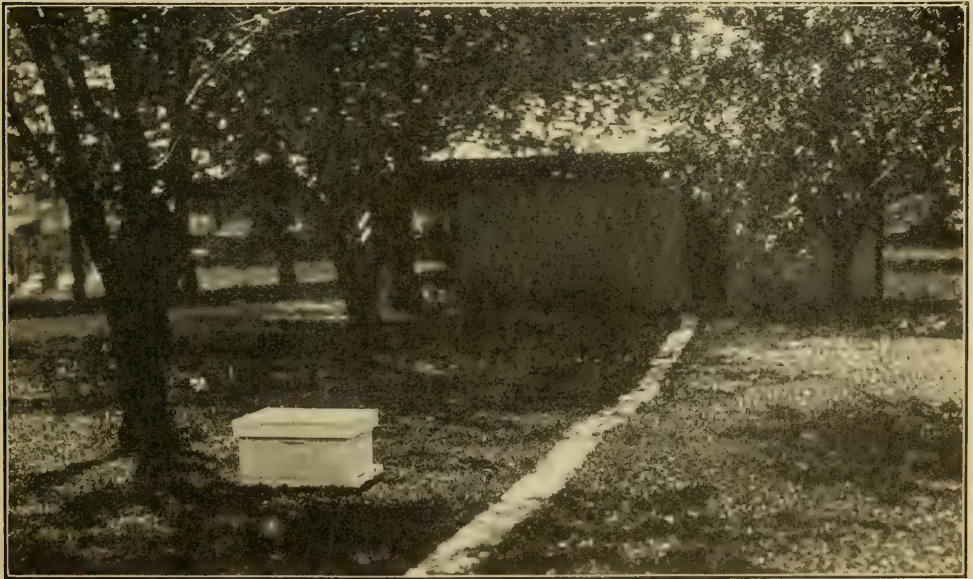
Ever since about two days after you sent in your order for the bees, altho you have not owned it even to yourself, you have been sauntering around the railroad station occasionally, so that if by chance the express agent knew anything about a certain package of bees addressed to you he could let you know. As the days have come and gone you have finally begun making some pointed inquiries, then finally you wrote an apologetic letter merely to see if anything had gone wrong in the filling of your order. A few days later you wrote another letter not quite so apologetic, ending up with a few well-chosen words calculated to bring results. Then when you had almost given up seeing the bees you were summoned to the station, and to the station you went, not able to conceal your eagerness.



You examined the shipping-case carefully, as an experienced beekeeper should, and tipped the case over on one side to read the directions. Here you made your first mistake; for, altho it did no harm in this instance, sometimes it is not at all a good plan to roll the case about nor turn it over on its side, especially if the day is hot and the combs are soft.



You start for home the proud possessor of ten or fifteen thousand worker bees and an Italian queen. Your children try to look thru the wire screen to see if they can find the queen. They do not know that the queen would not be fooling around on that wire cloth. You feel a little like running all the way home; but you reflect that it would look better to walk quietly, and then, any way, probably it would be better for the bees not to be jolted any more than they have already been.



Remember that it is not a good plan to locate the hive with the entrance facing a sidewalk, path, driveway, or any other thoroughfare. It may look pretty and all that, and you may like to stand in the path and watch the bees coming and going; but the bees don't like to have people walking in front of their hive, interfering with their line of flight. It makes them cross and irritable. The entrance should face away from any thoroughfare, and nothing should be allowed to obstruct the front of the hive, whether it be a tree, shrub, or even tall grass and weeds.



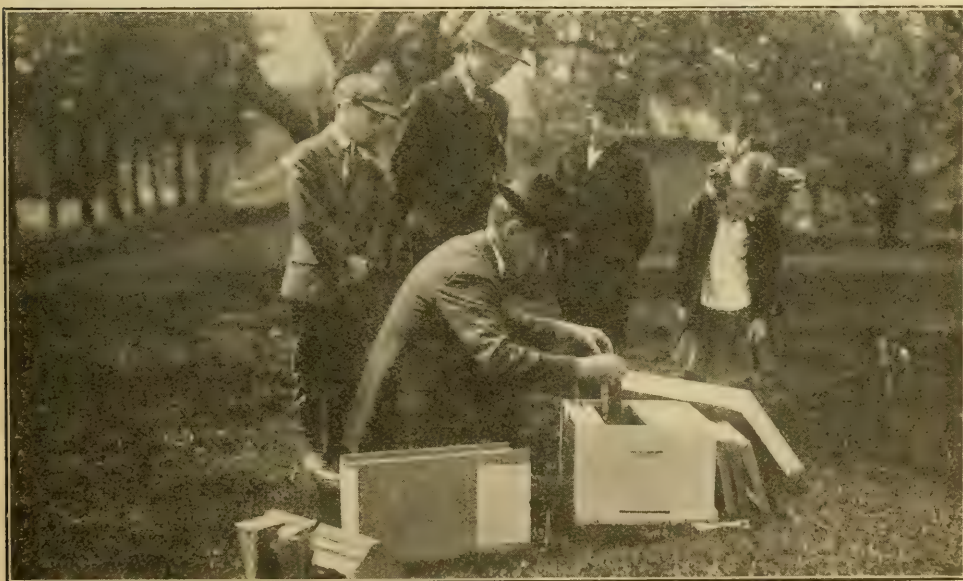
According to directions, contract the entrance of the hive by putting in an entrance-contracting cleat, which is merely a stick of the proper size to fit the entrance, with a notch cut out on the under side for the bees to pass in and out. Unless you buy a full-size colony it is better to have the entrance quite small at the start. A nucleus does not need a full-size entrance. In fact, so large an opening is a positive disadvantage.



Remove the four screws that hold the top of the shipping-case securely to the side. For goodness' sake, don't pry up the tacks from the edge of the wire cloth and imagine that the bees will leave the combs in the shipping-case and crawl into the empty hive. Just before you take the cover off, blow a very few puffs of smoke lightly across the wire cloth to drive the bees down a little. Never try to stupefy bees with smoke. That is not what the smoke is for. Smoke scares the bees, and their first impulse is to load up with honey, so they run for the combs and eat all they can hold. Under such conditions they are good-natured, like some of the higher types of animals.

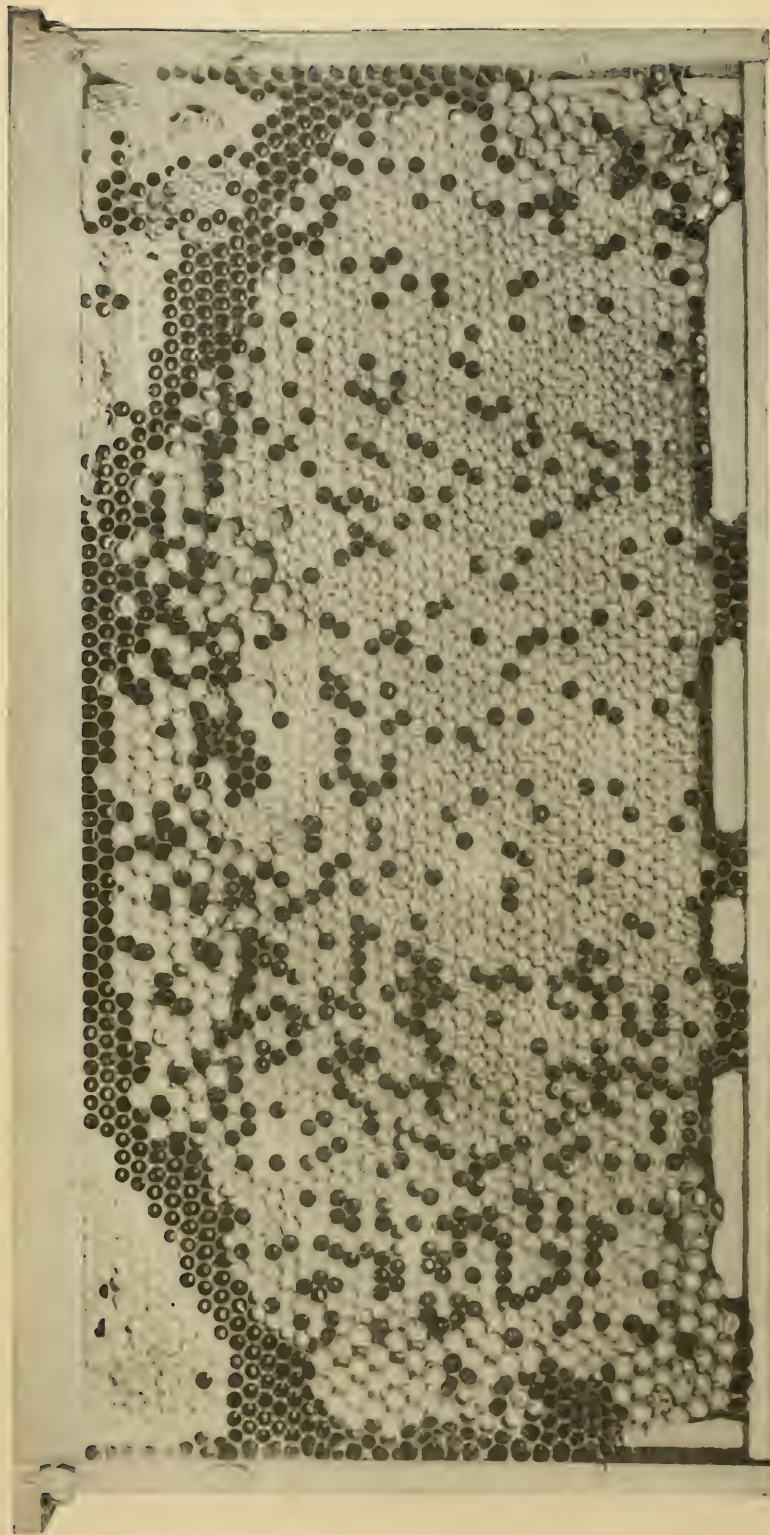


The long-anticipated moment has come. Carefully lift out, say, the center comb, and you are quite likely to see on it the large graceful-looking queen. Tho you may never have seen a queen before, you will recognize her instantly when you see her. She does not look blunt and clumsy like a drone, and there is something majestic in the way she moves.



Carefully lower each comb of bees from the shipping-case into a space made for them by removing empty frames of comb foundation from the new hive. Under ordinary conditions it is, perhaps, best to locate the combs of bees close to one side of the hive, and put a division-board, or follower, next to them on the other side. Gradually, as the bees need more room, they can be given an extra frame of comb foundation.

Watching a nucleus develop into a full-size colony is like watching the development of a child. And to realize that you have a force of little workers bringing in pollen and nectar is solid comfort; but do not think for a minute that the bees work for nothing and board themselves. They need some care. Under certain circumstances it may be necessary even to feed them—but that is another story.



This shows an ordinary frame of sealed brood containing both drone and worker, and a few scattering cells of unsealed brood. The drone brood appears at the top and at the lower corners. The cappings are larger, of course, and much more convex, than the ordinary worker. In the case of laying workers and drifting-laying queens, there will be found drone brood in worker cells. While no larger than worker brood, it has the characteristic rounding of convex surface that makes it stand out conspicuously. When comb is built from full sheets of foundation there is not much drone brood, but sometimes, when a colony is determined to rear it, they will enlarge the cells as they did in the case above. Foundation, in drawing out, sometimes stretches, making some of the cells near the top somewhat oblong as here shown. In those the queen will very often lay drone eggs. The unsealed brood is shown scattered here and there in the open cells, most of it worker, but a little of it is drone. The larva lay curled up about six days old. Some of the older brood is hatched out, leaving here and there empty cells which the queen will occupy again with eggs as soon as she comes back from the other portion of the hive. In the midst of a heavy honey flow these cells will be filled with honey. Sealed honey is shown in the upper corners, and the unsealed is shown just above the brood, and below the capped honey. The color of the cappings over honey is usually white. Sometimes it is dark and very often is transparent, showing the honey behind. The capping over brood is more fibrous and from a light to a dark brown. It also shows quite clearly the hexagonal shape of the cells. The capping over honey shows this less plainly.

N. B.—This cut and the matter appear in the next edition of The A B C and X Y Z of Bee Culture under the heading of Brood.

EFFICIENT PRODUCTION OF EXTRACTED HONEY IN CALIFORNIA

Conserving the Strength of what is the Equal of a Double Colony

BY G. W. BERCAW

By exhaustive experimenting we have developed the following plan of producing extracted honey on a commercial basis, assuming, of course, that there is a constant flow of nectar suitable at all times, and under normal conditions. This plan, however, might not work successfully in a colder climate; but we have found it is about the only one, so far as we are able to determine, that is efficient in our California climate.

Toward the close of the season, or after the rainy season has begun in autumn, put a full-depth super over the brood-chamber. Do not disturb the brood-chamber during the last extracting. This extra super is to be provided with full-drawn combs, ready to fill with brood, honey, and pollen, as the bees may feel disposed thru the winter months, when it is warm enough for activity, and on toward the spring. Do not put a queen-excluder between the two supers, but allow the bees and queen full access to all portions of the hive, above and below, in order that both supers may be filled as much as possible with brood and honey at the very earliest flow in the spring, which in some localities is as early as February.

Keep a close watch before a heavy flow comes on, as, for instance, in localities where the orange furnishes the flow, or the deciduous fruit-trees. In some instances both of these flows occur at about the same time. About 21 days before the honey-flow put a queen-excluder between these two supers, securing all the brood and stores above it possible, taking each frame out and shaking it in front of the hive to make sure that the queen is below in the brood-chamber. This shaking should be done after the excluder is in place. This gives an extra-strong colony of bees, boiling over, so to speak, with queen below and an excluder between the queen and the upper story.

When the heavy flow comes, these bees will fill the upper story with honey every ten days during the flow, so long as they do not swarm out. The honey may not all be capped within this time; but rest assured nature has taught them when to cap it, and it will be done exactly as nature intended it should—when it is ripe. This will depend upon the weather conditions, and on the rapidity of evaporation, etc. If the work of capping appears slow, and honey seems to be coming in fast, give the bees more room by adding another super above the one already on.

We have given this plan of manipulation a complete and comprehensive test, and find it the best one we know of. Of course, if the colony should cast a swarm it will not store the honey that it would under non-swarming conditions. When putting the excluder between the supers it is a very good plan to examine each comb below, and cut out all drone comb that may show up there. I presume that all beekeepers who take care of their yards work all the drone comb into the extracting-supers, and the worker comb into the brood-chamber. Notwithstanding this, drone comb will be worked into the corners and other vacant places in the brood-chamber, especially during the early spring season. This can be checked somewhat at the time of putting the excluders between, by cutting it out, as much as possible. Sometimes it is a good plan to transfer to the upper story at this time some of the combs that are below, and full sheets of foundation substituted below. This procedure must be left entirely to the judgment of the person working. By close watching one will be able to get a good strong colony of bees at the right time—the whole solution of getting a good honey crop—getting really two colonies of bees crowded into one. Such a colony will soon expand from the lower super into the one above for want of room. The queen must be kept below at all hazards. There is room enough below in the brood-nest to supply young bees; and with sufficient room above, the bees will not crowd the brood-nest so as to cut off the supply of young bees, so essential, of course, to the prosperity and success of the colony as a whole. Of course there will be a good many drones in the super above the excluder, which cannot escape, but they will soon die and fall to the excluder below, where they can readily be brushed aside. They are of but little account at this time, however; but if one desires to have them fly, the hive-cover should be raised a little, when they will soon all escape. These drones are of value, in large yards, where young queens are mating more or less every day.

It is quite true that this plan of manipulation takes a great deal of time if the yards are large and extensive; but what else can you expect if you want a good crop of honey? A beekeeper gets out of his apiary an amount just in proportion to what he puts into it, just the same as a rancher or farmer gets from the soil a crop in propor-

tion to what he puts into it. It means work, work, work. A single day in the early part of the season is worth three a couple of months later on.

This method might not be quite so successful in a country where the season is short and heavy; but here in California our seasons extend over many months, some months more heavy than others; but there is very little time during the year when bees cannot fly, more especially so in the Valley country.

At all events queen-excluders should be used in the production of extracted honey, as it is the only way to be sure of keeping the queen below the extracting-super. And where brood of any age is allowed in the extracting super, clean, wholesome honey cannot be produced. Do not keep excluders on during the winter months. Remove them in the fall, or about the time that the rainy season commences here in California, allowing the bees and the queen full access to the entire hive until the proper time comes the

following spring. When the excluders are again put on, the brood that is in the upper part will all disappear, as before mentioned, in about 21 days at the limit; and as fast as the young bees emerge, these cells will be filled with honey and other stores, thereby giving more capacity and efficiency in the manipulation of each individual colony.

I assume that the bees are of good stock, strong and healthy. They must be requeened every two years at least. It is a good idea to requeen a portion every year. For example, if the yard contains 200 stands of bees, requeen 100 each year. This is equivalent to a full requeening every two years. We think it pays any beekeeper to requeen in this manner. Either raise your own queens or purchase good stock. At all events, keep good strong vigorous stock. We prefer the three-banded Italian or the leather-colored queens in preference to all others, as they seem to be more or less immune to disease—at least this is our observation covering a good many years.

Glendale, Cal.

CONTROL OF SWARMING IN OUT-APIARIES

The Science of Keeping all the Bees together and Working in the Supers

BY M. W. HARVEY

Swarming is the fulfillment of a natural impulse of bees, and is governed by certain fixed laws; hence if man is going to control these fixed laws he must use other laws, and be ready when the time comes. I am a comb-honey producer, and do not follow any one fixed law in the control of swarming, so I will give them as used at different times of the season.

We will suppose the main honey-flow is just starting, and we have used every effort to get all colonies up to the same strength during the six weeks previous, and they are now at the swarming-point. The first thing is to get the supers on. There will be no swarming until a week to ten days later. If we are to keep those bees together, and make them work for us we must get busy. My first method is, examine every colony and every comb with brood in for queen-cells. When one is found with cells put a new hive in place of the old one. Find the queen, and place her in the new hive with the comb she was found on, and be sure there are no queen-cells on it nor even stubs, or the bees may start cells again and swarm. Now place the super on the new hive and an empty super on top, if the first super is well started, say half full or better. Shake all bees in front of the new hive.

Now, if increase is desired, take that old hive of brood and place it on top of a medium strong colony that is not doing any super work, with a queen-excluder between. They will finish those queen-cells and they will be as fine cells as any raised by any other method.

In one week to nine days go over this yard again, and this will be the big swarming week. Ten per cent or more will be getting ready to swarm. Now is the time to make all the increase. The swarming fever is on, and we have all the ripe queen-cells we need. If enough increase is not made from what were shaken, and there are cells to spare, divide these old hives of brood.

If no increase is wanted, take the brood and build up weaker colonies or place it back of the new swarm, and each week shake a few bees into the new hive until all is hatched and united again. These will make powerful colonies that may swarm again during the second flow.

This is my favorite method, and surest. It has been condemned by many because it is much work, and therefore a failure. I think I can account for the failure. A lazy man should not attempt to handle more than one apiary with natural swarming. The

man with out-apiaries must know what he can do and how many colonies he can handle in a day. I have taken care of 700 colonies alone, in four yards, thru the swarming season, and handled every brood-comb every seven to nine days—without losing a swarm. I admit it takes lots of hard work, and everything must move like clockwork and without lost motion.

The most failures in this method have been caused by shaking colonies that have never thought of swarming, and that might not swarm during the season. I never shake until I find cells started.

Other failures consist of weakening the old hive of brood so that the brood is chilled, and the new swarm dwindles. A colony to shake should be in the same condition a natural swarm would be. It should be strong, and nearly all the brood should be sealed. When shaking, leave about as many young bees in the hive as a natural swarm would leave. A shaken swarm that has cells nearly or entirely sealed is almost sure to swarm out in 24 hours. The queen in such cases should be clipped or caged so she will not get away.

Another method is to lift the hive from the bottom-board and look for cells on the combs. This is a quick way to get over a lot of colonies. I use it somewhat when I get behind and swarming is getting ahead of me. But I miss some, as it is hard to see cells in a strong colony unless they are on the bottom of the combs.

If no increase is wanted, and there are no weak colonies to build up, I shake in with the swarm all the young bees out of those old hives left back of the shaken swarms the week previous. That gives them a lot of young comb-builders and a big boost, and swarming is done with. I have taken off three finished supers by the time their brood-combs were filled out from one-inch starters.

Those old hives of sealed brood without bees are looked over carefully, and all queen-cells pinched off. I use those hives to shake new swarms on and put on plenty of super room, and then swarming is cured.

Another method which I use mostly in the second flow, when hives are full of honey, and frames are hard to get out, is to raise the hive up from the bottom; and, when queen-cells are formed, cut out all cells, then exchange locations with a weak colony. That ends the swarming in one operation, and shoves the other colony into the supers lively.

Still another method: If I want a moderate increase I shake one colony clean of bees; then the next one found wanting to swarm I put on a new location and place the old hive of brood in its place and give a caged ripe cell.

If the reader will notice, in all of these methods I aim to keep all my bees together, and all strong, at all times, and working in the supers.

Reno, Nev.

WHY I CLIP THE WINGS OF A QUEEN ON BOTH SIDES

BY R. F. HOLTERMANN

So Dr. C. C. Miller wants to know why I clip the wings on both sides of the queen, p. 345, May 1. The queen appears to me to look very awkward, backing to lay into cells. There may be nothing in this, but she certainly looks like a cripple with one side clipped and the other not. In this matter I followed the advice of the late Wm. McEvoy, and am satisfied with the change.

In my estimation there is a much better way of marking a queen's age. We used to clip the queens before the colonies were taken out of the wintering-cases. This necessitated putting the record on the wintering-case and a transference of this record to the hive when it was removed from the case. This gives extra thought and work at a time when one is in a hurry. So I now follow the idea given to me by my son Ivar. He scrapes the propolis from the top of the top-bar and marks when the queen is clipped. My system of marking the age of the

queen is to put down "Cl/May15/16," if she is found and clipped that day. If she is *found clipped* on that day the top-bar is marked "Cld/May15/16. If she is found clipped, and there is a record that she was found clipped (Cld) the previous year, that means that the queen is nearly three years old.

I prefer this system to having the record on the queen for the queen may be anywhere in the hive; but there is no difficulty in finding it on the top-bar.

While writing in reference to clipping I have come to the conclusion that it *may* not be well to clip the wings too closely, for there must be some circulation thru the wings, and probably the nearer the body the more this is interfered with.

BEES DRIFTING.

The editor of GLEANINGS appears to be under the impression that with the four-colony winter-cases the bees drift. Let me

say that, during the years I have used those cases, I have not one particle of evidence in that direction. There are many conditions which bring about a considerable variation in the strength of colonies that are no evidence of drifting. In the next place, with the entrance in one case facing north and south, and in the next east and west, and the row of cases broken in that way, I do not know of any better way of preventing the drifting of bees.

There is one thing I have noticed; and that is, that the more anxious the bees are

to get out of the hive, and the higher the outside temperature, the more the bees will drift, other things being equal. If bees have been wintered poorly, owing to poor stores or for some other reason, or if they have been hauled in hot weather, as for hauling to buckwheat, they will drift when opened during daylight. I would ask if bees drift when packed four hives in a case, and the entrances changed every second case. Under what conditions will they not drift? I know of no better plan to prevent it.

Brantford, Canada.

ANOTHER ONSLAUGHT ON AMERICAN FOUL BROOD

BY JOS. J. ANDERSON

On p. 586, July 15, 1916, I outlined some very perplexing experiences with American foul brood.

I make this quotation: "A mile from my two yards is an apiary where I know some foul brood has existed. Have my bees carried the disease from there after being shaken?" The editor comments: "In answer to the last sentence we say, probably, yes. We do not believe the recurrence of foul brood in your yards was due to the fact there was only one shaking instead of two, or that the Baldrige plan was unsafe, altho if one uses it he takes a little risk; but if we had much disease in a yard we would use it; for to destroy good brood in a strong colony is a waste. By the Baldrige plan this is all saved, except what is actually dead or diseased.

"To sum up, it is possible that some of this recurrence was due to the Baldrige plan; but we venture the assertion that 99 per cent, if not all, came from the yard a mile away. We suggest that Mr. Anderson buy out that yard or get his neighbor to treat it. If two shakings are necessary to make sure to cure American foul brood, we are willing to be shown."

With reference to the Baldrige plan, if it is used at all, great care must be used to see that the hive is absolutely bee-tight. No opening anywhere can be tolerated where a single bee can enter the hive. Then instead of the funnel I would suggest the use of the bee-escape tacked over the auger-hole, since I have discovered that bees will enter the hive thru an eight-inch funnel, tho the hole at the end be large enough for only one bee to pass at a time.

Now for a sequel to my former article: July 3, finding the honey-flow nicely started, I proceeded to treat the diseased bees. I shook 103 colonies on this date as follows: First, from each diseased colony I took all

frames that contained no brood, tiering the same up in the cellar away from danger of being reached by the bees. Three helpers made it possible to do this in a hurry, tho there was not the least inclination to rob on the part of the bees. The object of removing these frames was to make the work of actual shaking more rapid. While doing this I marked the weak colonies, some twenty in number, on which I intended to tier the brood. Here let me emphasize the fact that, for treatment to be successful, colonies must be very strong in bees, even if it is necessary to double up. I remember at one time treating seven colonies for a neighbor. These were all shaken into two hives, and they made rousing colonies that stored a lot of surplus. This was seven or eight years ago, and no sign of the disease has since shown up in his yard.

I next removed all brood from each colony, inserting one old empty comb. This helps to keep the bees contented, so that they are not as much inclined to swarm out. To avoid shaking out the honey which was coming in heavily, I was forced to brush the bees instead of shaking. I had previously prepared a lot of hive-covers by attaching on the under side several narrow strips of foundation. The process of removing brood, brushing the combs, placing in the old empty comb, and placing on the prepared cover, did not occupy over one minute per colony. It is important that there be sufficient help to remove frames, brush off bees, and tier up the brood with the least possible exposure. Notice that there was no changing of hives at this shaking.

On July 7 I administered the second shaking, proceeding as follows:

A clean hive with full sheets of foundation on wired frames was placed conveniently near each colony to be shaken. The old hive containing bees to be shaken was set



SETTLED IN THE SADDLE.

From remote history bees have been known to choose odd places for a home; but it remained till recently for a swarm of bees to "settle" on the saddle of a bicycle. The illustration shows a swarm that took possession of the seat of a bicycle on one of the main business streets of Whittier, Cal., on a recent summer afternoon. The time of day was a busy one, and the usual passing of pedestrians, shoppers, autos, and other vehicles was going on. The bees alighted in front of a confectionery store, and completely covered the seat of the owner's wheel. A curious crowd soon gathered, but kept at a very respectful distance. A heeman brought a hive and soon coaxed the little workers into it. MILO HUNT, Whittier, Cal.

about two feet in front of the stand, and the new clean hive set in its place with six frames removed from the middle of the hive. One attendant carefully raised the cover, and another the old comb that had been inserted. One thump on top of the hive-body dislodged all bees, which fell into the hive, and the newly drawn comb was removed by a third attendant from the hive-cover into a covered pail. A few strokes of a Cogshall brush (for no thin honey prevented the shaking of the bees) removed the bees from the old comb, which was placed in a tight box fitted with a cover.

This new wax and the frames were removed to the cellar as fast as the box and pail were filled. Then all bees were dumped into the clean hive, and the cover placed on. I lost a few queens, but not many—not enough to pay for the time and trouble, and risk from exposure in hunting them up.

About 12 days from the first shaking, the weak colonies (now very strong) on which brood had been tiered, were shaken. The combs were all stacked in the cellar. The procedure previously outlined was followed, the second shaking occurring four days after the first. This finished the job, and ought to show satisfactory results. I no-

ticed no recurrence last summer; but I found four cases in the outyards from which diseased bees had been hauled home. This season's inspection will be the test of last season's treatment.

As the editor suggested, I looked after the neighboring apiary a mile away, having the appointment as deputy state inspector, and found a very serious condition, which perhaps accounted for the very unsatisfactory results of my 1914 treatment. Out of 47 colonies I found 25 diseased, most of them fairly reeking. A brother with 17 colonies just over the division fence had 7 colonies out of 17 diseased. All infected colonies were burned, and the ashes buried, and all old hives and old combs on the premises were destroyed in the same way. The strange feature of this experience is that these men who claim to have handled bees for thirty years, and claim to know all about foul brood, did not even know that foul brood existed among their bees until I called on them. I found old infected hives standing open, combs scattered in all directions—an ideal condition for the spread of the disease.

Last season, in the two counties comprising my district I inspected some sixty

one apiaries and over 2800 colonies. Twenty-three apiaries were diseased. Of the 2803 colonies I found 375 diseased, of which 215 were burned and 160 treated. All bees in box hives were transferred to movable-

frame hives. With the work so well under way, and an increased apportionment for this district, we are hopeful of very beneficial results.

Salem, Ida.

NOTES FROM GERMANY

Honey; Some Qualities Not Generally Known. Reason why Very High Temperatures Should be Avoided when Liquefying Honey

BY J. A. HEBERLE, B.S.

Honey is not a substance with a constant definite chemical composition, but a very complicated compound varying considerably, because it is derived from a large variety of nectar-secreting blossoms and plants.

Dr. Haenle, in his "Chemistry of Honey," gives as an average for a large number of analyses of pure honey from different parts of Germany the following:

Dextrose, 42 per cent; levulose, 35 per cent; saccharose, 2 per cent, making it a sugar content of 79 per cent, water about 20 per cent; nitrogenous matter 1 per cent; mineral constituents, 0.2 per cent; phosphoric acid, 0.02 per cent.

Of the 79 per cent of sugar content in honey, 77 per cent is in a form that, without any action on the part of the digestive organs, is immediately assimilated and goes into the blood.

Any one who, because of much physical exertion, becomes so tired that he feels completely exhausted, will find that, by taking a spoonful or two of honey direct, or with water or a little bread, in a few minutes he will be relieved of his fatigue: his strength is restored, so that he can again undertake a task that requires much exertion.

Because this sugar in honey is in a form to be assimilated without taxing the digestive organs, Dr. Feehlmann (*Schw. Bztg.*) called it "physiological" sugar.

For the mineral constituents and their importance to the human body, see GLEANINGS, p. 797, 1915.

ENZYMES IN HONEY.

In addition to the sugar, mineral matter, ethereal, and albuminous bodies, there is something very important in honey that has received but little attention. Dr. Thoeni said in a lecture (*Schw. Bztg.*) that, years ago, Erlenmeyer and Planta, two eminent investigators, showed that in the preparation of honey from nectar cane sugar was converted into invert sugar, and starch into dextrin and sugar. This change is caused by enzymes or ferments. Auzinger showed later that, besides the ferments which made

the invert sugar called "invertose," and those which change starch into dextrine, and sugar called "diastase," there is still another ferment in the honey called "catalose." This ferment has the power of converting hydrogen peroxide into water and oxygen. Marpmann claims to have found still other enzymatic bodies in honey; but this has not yet been corroborated.

The nature of these ferments is not quite understood. They seem to be bound to the albumen molecules. Only the effect they produce is known, but not how they come into existence—how they are produced. It is only known that they are derived from living cells.

Ferments, for the live process of all plants and animals are of the utmost importance. For instance, in the digestion and nourishing of the body they are indispensable since without them assimilation is not possible. The ferments are very susceptible to heat. Temperatures less than 212 F. injure them; and if the heat continues for a longer period they are destroyed. Because the ferments are derived from living cells, their functions are called biological.

From the importance of these enzymes in the process of digestion and assimilation it is obvious that honey, not only on account of the "physiological" sugar of which it is composed, but also for the presence of these ferments, is far superior to all other sweets, no matter how costly they are nor how pleasant they may be to the palate.

At present it is not possible to produce these ferments in a pure state; besides, their production would be so costly that they could not be added to any of the sweets on the market.

Besides these ferments there is a specific albumen present in honey; but whether this is altered by high temperature is not mentioned.

I have for years recommended to my patrons in liquefying honey not to heat above 122 degrees F., believing that a considerably higher temperature would have an un-

favorable influence on the aromatic principles in honey. Whether I am correct in this I know not.

More investigation seems necessary to determine the influence or the alteration honey undergoes when strongly heated. Dr. John published in the *Muench. Btztg.* a series of experiments and the methods employed on the property of honey to change starch

into fermentable sugar. Common sugar must first undergo a change before it can be fermented. He finds that up to 50 degrees C. the diastase in honey retains its full power to change starch into sugar; but at 55 C. this power is reduced; and at 65 C. (149 F.) this power or property is completely destroyed.

Kempton, Bavaria, Germany.

THE GRAVITY METHOD OF STRAINING HONEY

BY W. H. CRAWFORD

For ten years I worried with honey-strainers, using several different kinds during that time. In this climate honey dries to thick candy very quickly when spread out and exposed to the air, and on that account honey-strainers clog up so often that they are a nuisance.

Twelve years ago I eliminated strainers from the list of devices used in the production of extracted honey. Tall tanks are provided, the size and quantity depending on the amount of honey to be handled. One tank at a time is filled brimful of the honey just as it is taken from the extractor. The honey is allowed to remain in it at least three days, if possible, by which time gravitation will have completely separated the bits of wax and pollen or propolis from the honey, pushing them clear up to the very top of the tank, where they can be taken off with the hand almost as easily as the peel can be taken from a banana.

The second tank is being filled while the first one is allowed to settle thoroly, and likewise the third tank is filled in the same manner, giving ample time for the honey in each tank to be thoroly separated from all foreign substances that may have been in it at the time when taken from the extractor.

In drawing the honey out of the tanks, care should be taken to leave enough honey in them to stand four inches above the gate, thus preventing bits of any kind, or foam, from being filled out into receptacles.

A QUICK METHOD OF FILLING PAILS ACCURATELY.

In filling ten-pound pails we first weigh 10 lbs. of honey into a ten-pound pail. This pail is put on a board of any thickness, 7 x 7 inches square, cleated across the grain at one end with a thin cleat, and cleated at the other end with a cleat of just the right thickness to incline the board when placed on a level floor, to the proper angle that will barely cause the honey in the pail to touch the rim on the lower side. Two nails

are driven near the lower edge of the board, which prevent the pail from sliding off.

This board is put beneath the gate and the pails are placed on it to be filled. It is perfectly easy to fill the pails just right with this device, because it is so easy to see just when the honey barely touches the rim at the lowest point.

Any size of pails can be filled the same way by making a board for each size, and by using the same principles as described above.

Being so very handy and cheap, we never think of using any other method of filling pails. Should the weight of the honey change at any time, the board can be easily adjusted so that the proper amount of honey desired will fill the pail so that the required weight of honey just barely touches the rim of the pail on the lower side.

Roswell, N. M.

[The gravity method of clarifying honey, as mentioned by our correspondent, has been tried under all conditions. We do not know who was the first to use it. Some have felt that when the honey is thick and waxy the gravity method is not practicable. However, the thick honey simply means that more time must be allowed—hence more tanks. No doubt there is a limit somewhere after which the honey would require heating in some way.—ED.]

No Use in Drawing a Color-line.

I am much interested in the knocks on the goldens. I have a few queens from the best breeders in the United States; but I have one black colony that I got of a farmer that beat all the others last year, and wintered finely. On May 1 it had eight frames of brood, and without feeding or attention since last fall. These bees were wintered outdoors in a double-walled hive, and are very gentle. I realize they are out of date; but as long as they give me the most honey I will stick to the blacks.

A Beginner.

Heads of Grain From Different Fields



THE BACKLOT BUZZER

The doctor who patched up the old beetrue hunter wanted to know if they were really wild bees he captured. The patient said the bees weren't especially wild, but the owner of the tree was.

June Faith.

Such countless questions darkening our days!
Such wide-eyed wonders drifting down the ways

Of living and of laughter and of light.

And thru the weary darkness of the night!

"Why?" and "Why?" and "Why?" from
soul on soul,

And "How?" and "Whence?" and "Whither?"
thru the whole

Unending and unsatisfying ery

Of climbers on the trail that leads so high.

O shaken souls, and stirred! why strain to
know

These dim far things when bees are humming
so?

Let go your strangling questions—this is
June!

Let go and listen—life is all atune!

Come hear her birds and bees—why, all my
hives

Resound with rapture of a million lives

That flash, ecstatic, thru a few swift hours,
And live and live and live with all their

powers!

By fields of clover-bloom wild roses nod.

Come, climb and sing and leave the rest with
God.

Nashville, Tenn.

Grace Allen.

How to Make Increase by Feeding; What Feeder to Use.

My little beeyard is doing finely, having here a number of good days during fruit-bloom, some of which is still on. The strong colonies have brood-chambers full of honey and brood, and supers with baits are now filled with bees doing something, anyway.

What, in your opinion, is the best way for me to increase the coming year to 100 colonies? It is a rather slow process building up from the few I have, 12 colonies now, by stealing a comb now and then from them and ordering packages in the spring from the South.

How, where, and for what price can I buy combs with honey in them, say 200 combs in Hoffman frames, clean and free from any fear of foul brood? If I had these combs I could have 100 colonies by a year from now, and from that on it would be easy. I do not like to buy bees in hives.

Youngstown, O. C. E. Blanchard, M.D.

[It will be perfectly feasible for you to increase your twelve colonies up to a hundred. The writer did this some years ago, or, rather, we took ten colonies, supplied them with laying queens, gave them only frames of foundation, increased up to over 90, and secured a crop of 2000 pounds of honey, but the conditions that year were favorable. They are very favorable this year, and we see no reason why you could not duplicate the feat.

In order to make the increase rapidly, and not waste time, it would be necessary for you to buy untested queens. However, by making a smaller increase, or by running a series of nuclei, you can raise your own queens. You would not need very many nuclei, but simply enough to furnish you young queens as fast as the increase was made, which, of course, would be rather gradual.

The Alexander plan of increase we would consider as good as any; but under your conditions what you will need to do after the honey-flow is over is to divide your colonies up and supply each division with a laying queen to start on at once, because it will be only a waste of time to make a division unless the colony has its own queen.

We would use the Boardman feeder and stop up all the holes except one. Make a syrup of about 50 per cent water, 50 per cent sugar, by weight, and with the holes all stopped up but one, you will be able to make the syrup in the feeder last about 48 hours. A slow feed to the bees after the honey-flow is over is much better for increase and getting brood than a large amount of feed at one time. The ordinary open feeder, like the Doolittle, the Miller, or the Alexander, or even the Simplicity, gives the syrup too rapidly. It excites the bees, they rush out into the air, start more or less robbing, caus-

ing the bees to waste their energy in unnecessary flights to discover where the unusual supply of food is coming from; but the Boardman feeder, on the other hand, when it is regulated down so that the syrup goes to them very gradually, does not cause this excitement, and the bees go on breeding and thus save themselves unnecessary wear and tear in going to the fields.

We don't advise buying combs containing stores. It is very doubtful about your being able to obtain any that would be free from disease, or, rather, there would be the danger, if disease of any kind starts among your bees, you would have your labor almost for naught. Your better way is to use frames filled with foundation, wired of course, and put one of these between two frames of brood during the warm weather; but do not give these frames too fast. You will have to exercise considerable judgment in that you do not spread the brood too much, thus causing some of the brood to chill. There should be a fairly good force of bees to take care of the brood as it hatches out.—Ed.]

No Trouble from the Spray on the Cover Crops.

Wesley Foster, Feb. 1, page 96, in the paragraph on spraying and beekeeping, takes too gloomy a view as to the destruction of bees on account of spraying fruit-trees.

I have 22 colonies within a stone's throw of our 40-acre apple-orchard, which we spray very thoroughly three to four times a year, and I assure you that we hardly miss a blossom. We do not ask our hands how much they spray a day, but we ask them how thoroly they have done their work.

The first spray is usually as soon as the cluster of flowers separates from the bud, and the second spray when the petals of the flowers begin to drop. My bees, in blooming time, naturally go in streams to this orchard, and in three years of spraying I have never found a dead bee in the orchard, and have not seen more dead bees around the entrance to the hives than what will die of old age.

We spray with lime, sulphur, and arsenate of lead. All those orchardists that spray before the bloom begins to drop will find out to their sorrow that it will not do to spray too early, because spraying, when wrongly done, will wash the pollen from the bloom, and such blossoms will not set to mature an apple. They usually fall off when they are about the size of a pea.

As to the killing of bees from the cover crop in this locality about the middle of May, when we spray for the last time, there is hardly any bloom on the ground from which bees could be injured, and one or two rains will usually eliminate the danger of bee-poisoning. It should be the aim of all beekeepers to have such laws passed that orchardists should spray when the cluster first separates and after the bloom begins to fall off; for by that time there are very few

bees that will visit an orchard except in a few instances where a few blossoms will open exceptionally late on a tree, which, however, is not much, and cannot injure bees to any extent.

Bees are absolutely essential in making a fruit crop. We have the only orchard within bee-flight that is sprayed. We have several large orchards which are not sprayed, and we made last year a good half-crop of 1852 barrels, while the other orchards have had an entire failure of Ben Davis apples. Our orchard is entirely Ben Davis, and this is principally due to thoro spraying and my bees.

Stratford, Mo.

T. L. Scharff.

[If you use sulphur in each of your sprays the bees will not be poisoned much, as sulphur is a repellant to insects, including bees. The fact that there was "hardly any bloom" on the cover crop would also protect you.—Ed.]

Swarming with Clipped Queen, Transferring, etc.

Dr. C. C. Miller:—1. If I give a queen two hive-bodies for a brood-nest, shall I get as much comb honey from that colony as with one body, or shall I get more?

2. If I clip queens can I let the colonies swarm naturally, and then, about six o'clock in the evening, take out queen and bees and put them in another hive on foundation? I work all day, and get home at 6 o'clock. My wife is not strong enough to move a hive after the bees have swarmed, so has to wait till I get home. What, in your opinion, would



An early swarm. Photographed by W. W. Gardner, Winsted, Ct.

be the best way to handle them? I am afraid I don't know enough about them to make an artificial swarm as I never handled bees before.

3. I have a hive full of crooked combs that were built in Hoffman frames without starters. They are now full of brood, and I want to take them out and get straight combs with full sheets of foundation. How can I manipulate them so as to let the brood all hatch? What is the best way to get the honey out of them? I have no extractor.

4. When is the earliest time I can start nuclei in this locality? I have one colony now which has capped drone-cells.

5. Which do you advise—one or two frame nuclei?

6. If I start a nucleus with one or two frames of bees and brood about the middle of May, is there any possibility of surplus from that colony if it can be helped with brood from another colony? How much help would it need? There is much more I should like to ask, but will try to understand the A B C and X Y Z, and Fifty Years Among the Bees for the rest. I have gotten lots of valuable information from both of those books.

Bert T. Wiemeller.

Indianapolis, Ind.

Dr. Miller replies:

1. You will gain decidedly if, with a strong colony, you allow the queen two stories up to the time of putting on supers, and then reduce to one story. I never experimented much in letting the two stories continue when supers were given; but from the little I did at it I thought I lost rather than gained.

2. Yes, you can do as you propose; but if you can get your wife to aid and abet you, or even some child, you can do a better way. When the swarm issues, catch the clipped queen and cage her; thrust the cage into the entrance of the hive, or else close beside it where it will be in the shade, then in the evening or next morning you can operate to your satisfaction without having to hunt for the queen.

3. Set over the hive an empty hive-body containing a straight comb of brood that you will get from some other colony. Any time after three days, if you find eggs in the upper story you will know that the queen is up, or at least has been up. If you find the queen on one of the frames, set that frame to one side; lift off the upper story; put a queen-excluder on the hive, return the upper story, and then put back the comb with the queen. If you don't find the queen up you must continue looking for her other days until you do find her. Three weeks after putting the queen over the excluder, all the worker-brood in the old hive will be hatched out, when you can set the upper hive down on the bottom-board and take away the old hive. You may drum the bees out of the old hive; or if you are careful you can cut out the combs, bees and all, and brush the bees off the combs at the entrance

of the new hive. It is just possible that the combs are so thoroly built crosswise that you cannot get out any frame. In that case take a hand-saw and cut away any attachments of comb to the sides of the hive. Turn the hive upside down and lift it off the combs, when you will have the latter at your mercy. Some of the combs of honey may be fit for the table. Melt up the rest; and, when cold, lift off the cake of wax.

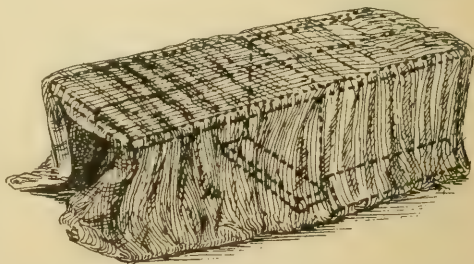
4. You can do so while dandelion is in full play; but unless you have some special reason for doing so at so early a date, better wait till white clover begins.

5. In general the two-frame, and sometimes the three-frame, are better.

6. Yes, not only a possibility, but a good probability, if you give it a frame of brood by May 25, and then two more brood afterward, giving each of them after an interval of ten days.

Fooling the Robbers.

Last season I discovered a sure cure for robbing; at least the plan did not fail me once during the season. I take two boards four or five feet long, and lay on top of the hive lengthwise, the outer edge of the boards even with the outside edge of the hive. These extend about two feet over the front of the hive. Then I take a piece of old carpet or anything that will reach around the boards, hive and all. With a short board



I press the carpet tight against the sides of the hive and put something under the hive if there is any light showing. This forms a dark passageway of about two feet into the entrance of the hive. The robbers won't enter unless they can see light or some way to dodge out. The bees which belong to the hive will pass thru and into the hive.

Kansas City, Mo.

J. H. Morris.

Extract Those Partly Filled Sections.

I know not whether any one else has tried it, but I had my blacksmith make me four clamps in order that I might extract from imperfect sections. I tried to get a clamp suitable for the purpose, but without success, so I had a blacksmith make me four—one for each basket in the extractor. They are just long enough to slip over the ends of section-holders with four sections in; and when the thumbscrew was turned down there was no trouble in the extractor, except I had to put a screw-end down in the extractor.

Of course I uncap after the sections are clamped in the holder.

To extract honey from unfinished sections I had the blacksmith make me four clamps from a $\frac{1}{4}$ -inch iron rod, as per sketch. Sections are placed in the section-holder, a clamp fastened over the top of the holder by means of the thumbscrew. After uncapping where required, the clamped section-



holder was then placed in the extractor with the thumbscrew down to avoid coming in contact with the upper part of the extractor while in operation. I found this little device satisfactory in every way, and take pleasure in passing the idea on to any beekeeper to whom it may be useful.

W. L. Palframan.

Niagara on the Lake, Ont.

The Super-spring Fixes It.

Doolittle says, p. 796, that if the super is the least bit too broad for the mass of sections "we have a space to be filled with propolis, very much at the expense of the appearance of the sections when ready for market." Does he mean if there are curved lines? If all lines are straight, will not the super-springs prevent any open space for propolis anywhere in the breadth except around the springs themselves outside of the last fence? What is a super-spring for?

Steven T. Byington.

Ballard Vale, Mass., Oct. 14.

[Doolittle evidently meant that if the super was too large the sections would be only loosely in contact, with the result that bee-glue would be chinked in between the spaces. Usually it is advisable to have the super large enough to admit wedges and a follower-board or springs—preferably the last named. When the sections are closely squeezed together there will not be much bee-glue deposited between the contact edges, for the simple reason there is no room for it. The very purpose of super-spring wedges or thumbscrews is to minimize accumulations of propolis.—Ed.]

Is *Melilotus indica* a good honey-plant?

Marion, N. C.

W. B. Bailey.

[*Melilotus indica* is a honey-plant, but an annual sweet clover, used largely for a cover crop in orchards. It grows readily, but is not as good a honey-plant as *Melilotus officinalis* or *Melilotus alba*.—Ed.]

Limitations of Express Shipments of Bees.

Having no foul-brood law and no inspector in this state, would I be allowed to sell pound packages of bees? I note Massachusetts will not allow shipments into that state; but how about New York, Pennsylvania, and Ontario?

From what you know, which do you consider the best counties in Indiana for keeping bees? Is there any good location in the southern part of the state? L. H. Robey.

Worthington, W. V., May 10.

[There is no reason why you could not ship bees in pound packages anywhere except in Massachusetts, and even there you can ship them providing you get permission or have them inspected on arrival; but the trouble is, bees in pound packages cannot stand it to be held until they could be inspected, and we do not know how it would be possible to determine whether they had disease in such packages.]

We could not advise you as to the best locality in Indiana; but we would advise you to write to Geo. S. Demuth, care of Bureau of Entomology, Washington, D. C. He was formerly inspector of Indiana, and we think he knows the state very thoroly.—Ed.]

Why Queens Hatch without Wings.

I am sending you a sample queen, a virgin, hatched out today, and she has no wings. Half of the queens I have reared this spring have been deformed in this way. I never saw as many crippled young queens in my life, and I don't see what is the cause of it unless it is the cool weather.

Roanoke, Va., May 27. Henry S. Bohon.

[When bees or queens hatch without wings the trouble can usually be traced to too much heat or too much cold at a period when the wings are forming. Sometimes the moth-worm has something to do with it; but in your case we should infer that the bees had withdrawn from the place where the young queen was confined in the cell, and she became chilled during a period of her growth, with the result that her wings failed to develop. An examination of the cage seems to show that she is also defective in her legs. We believe you will probably find quite a difference after warm weather comes on, and especially if you have your cells reared in very strong colonies in double-walled hives. We do not use single-walled hives for the building of our cells. We have two-story powerful colonies in double-walled hives.—Ed.]

A Correction

Allow me to correct some errors which crept into your editorial of May 1 entitled "Our Foreign Exchanges." First, you have made an error of names. It is not Ulrich Gubler who has died, but Ulrich Kramer, as you will see by referring to *Gleanings* for 1915. The former is the retired editor of the *Bulletin d'Apiculture pour la Suisse Romande*, and is very much alive. At least

we have a letter from him dated December 28, and we hope nothing has happened to him since. The latter, Mr. Kramer, was president of the Eastern Switzerland Beekeepers' Association.

The three Italian bee journals are still appearing regularly, and several of the French, tho the latter are less regular. Among them we should name the *Revue Française d'Apiculture*, published in Marseilles, and the *Abeille Bourguignonne*, published in Joigny. The Swiss "Bulletin" has not missed a number. Several of the German magazines have also continued regularly, tho there is no telling how soon they may have to suspend.

Some Russian bee journals are also coming, and I have on my desk a publication sent out from Tiflis, describing the Caucasian bees and giving a map in three colors, to show the distribution, between the Black Sea and the Caspian Sea, of the Caucasian gray bee and the Persian bee or bee of Lenkaron, with a delineation of the districts in which the two breeds are mixed.

So, in spite of the wholesale massacres caused by the olden-time spirit of conquest, civilization is asserting itself in the countries at war. We trust that, after a while, they may be so sick of fighting that a general disarmament will ensue. Enough wealth has probably been destroyed to feed the entire world for a year or more. Famines may ultimately result.

Of course, the second quotation you make is not from *L'Apiculteur*, published in Paris, but from the *Bulletin*, of Switzerland, and the words are correctly credited to good old friend Gubler. But Mr. Gubler never wrote a line for *L'Apiculteur*.

Hamilton, Ill.

C. P. Dadant.

[Thanks, friend D., for your friendly corrections.—Ed.]

Bees and Bullets

A few days ago a man who lives near one of my outyards phoned me that a large giant cactus which stood in one of his fields had fallen down, and that a swarm of bees in it was making things so hot for him that he was unable to plow near it, much to his discomfort and annoyance. He concluded that, since the cactus was so near my bees, and that mine were the only ones in the country for some distance, they must be one of my escaped flock, and that I ought, therefore, to come up and take them away. Knowing that a friend near an outyard is a priceless jewel to a beekeeper I immediately went up, more to please him than to get the bees, and found them truly fighting mad. Calming them with a few puffs of smoke I found they had taken up entirely within the cactus, and had got there thru a very small hole in one side. Taking my ax I chopped away the fleshy parts, and there they were in a nice, dry, snug home about two feet long and one foot in diameter. I then broke away the skeleton parts and soon hived them.

I then wondered how they could have got in there and what had originally made the hole. Some birds may pierce the thorns and thick flesh that covers the skeleton work within, but they always choose to do it at the more tender top, and therefore there must be some other cause. My investigation, however, soon dispelled all doubts, as, imbedded in the wall just opposite the entrance, was a bullet with its nose in the right direction. This told the story. Some one had, perhaps carelessly, shot into the cactus years before, and, contrary to the general rule of wantonness, had actually made a home for a nice swarm of bees.

Phoenix, Ariz.

L. J. Holzworth.

Putting Fresh Bees where Others have Died.

I received a fine queen last year, but foul brood got in the hive and all died. There have not been any bees in the hive since last December. Would it be safe to put new bees in the hive with the old combs?

Las Vegas, Nev.

Philip Steinman.

[It would hardly be safe to put any fresh bees in a hive where bees had died of foul brood; but are you sure they died of that disease? We are sending you our little book, "Diseases of Bees," and suggest that you look it over very carefully, especially the symptoms of American and European foul brood. If you find scales in the combs of dead larvæ it is probably American foul brood, and it certainly would not be safe to introduce any other bees into the hive; but if they died of dysentery or from exposure to cold weather you could put in a half-pound of bees and make a very nice start.—Ed.]

Don't Get the Wrong Colored Paper.

The article by Frank Coverdale, April 1, page 284, is of great value; but his reference to litmus paper might confuse a great many. There are two colors of litmus paper—blue and pink. The blue is for testing soil or water for acid, and the pink is for testing for alkali.

Poplar Bluff, Mo.

H. W. Peterson.

A Love Limerick.

A foolish young lover named Vawter
Fell in love with a beekeeper's daughter.
When his heart he had flung
At her feet, he was "stung"
And went away breathing out slaughter.

Then came another and sought her
With jewels and gold, and he bought her;
But his love she had not,
And she never forgot
The unhappy lesson it taught her.

For into a passion he wrought her
By drawing the marriage ties tauter;
So she got a divorce,
With a pension, of course,
And left him with jeering and laughter.
Æsop.

A. I. Root

OUR HOMES

Editor

Come with us; let us lay wait for blood; let us lurk privily for the innocent without cause; let us swallow them up alive as the grave; and whole, as they that go down into the pit.—PROV. 1:11, 12.

We have made lies our refuge, and under falsehood have we hid ourselves.—ISAIAH 28:15.

The letter below explains itself:

Mr. Root:—I am sending you an article which I took from the *Fra*. I should like to see it denied in your Home department. WALTER E. WRIGHT.
Ellwood City, Pa., May 29.

I presume our readers are aware, or at least most of them are, that both the whisky party and the temperance people are sending out large-sized sheets about once a week to post the people in regard to this matter of wet and dry, giving statistics as to what is the result in states that have voted dry, etc. As Kansas has been held up before the nation as an example of the beneficent results of prohibition, The National Wholesale Liquor-dealers' Association has "got busy" in hunting up everything that could be said against prohibition in Kansas. Sometimes their statements have a grain of truth to start with; and the statements that they make may be true; but their explanation of the facts given is misleading. Here is an illustration:

"Kansas closed 220 schools in 1913."

The above was given on the sheet our friend inclosed. Now, I have not looked the matter up, but I presume Kansas has been in the forefront in consolidating her country schools, just as we are now doing here in Ohio. But within two miles of where I am now sitting, the old schoolhouse where I learned my A B C's has been moved away, and is now used as a barn. Are we to understand that this means that the juveniles in that neighborhood have fewer and poorer school advantages than they had 70 years ago? Not by any means. An electric railway runs close to the spot where that old schoolhouse stood; and the pupils, not only from that neighborhood but along the electric line, attend the fully equipped and up-to-date schools here in Medina. Think of using that as an argument against prohibition!

Some years ago Elbert Hubbard gave us so many good things in his *Fra* magazine that we subscribed for it. But shortly afterward he said so many things that were so shocking and so irreverent and blasphemous that we could not consent to have it come any longer. My stenographer says the *Fra*, like the *Philistine*, seems to oppose all moral reforms. Well, our brother sends us two pages; and these two pages seem to be

crammed so full of false statements about Kansas, and bitter denunciation of temperance and temperance people, that I could only wonder that anybody of decency could tolerate it in the average home. Here is a sample:

After thirty-five years of trial, prohibition with all the trimmings has given Kansas an enormous rate of divorces granted wives for cruelty and drunkenness; an unusually high and increasing rate of pauperism; school systems ranking only twenty-ninth in efficiency; an extremely high and increasing rate of insanity, and almost the lowest church population in the Union. Kansas closed 220 schools during 1913. The 1915 census shows a population decrease of 18,404 since 1910.

I am surprised to find that there is a magazine in the United States that would give space in its reading-columns to anything so much in line with the sheet that is being sent out by the Liquor Dealers' Association. I have one of the latter in my hand, bearing no date, but headed "Serial 22." The heading of the sheet is as follows:

NINETEEN STATES ARE "DRY" (?), BUT ABOUT 10,000,000 MORE GALLONS WERE USED LAST YEAR THAN EVER BEFORE.*

Uncle Sam is drinking more whisky today than at any time since he was born. The nation drinks more whisky as a result of prohibition. Four dead, one is dying. Six other youths of Plainview, Texas, are seriously ill. Drank hair tonic. Seventeen sons of prominent families swallowed stuff when they could not get liquor in a dry town; a barber was a victim.

It is evident from the above heading that the liquor party are hard up in their efforts to find fault with prohibition. Because some boys drank some hair tonic and were killed, they quote it as the result of not having a legalized saloon where they could quench their thirst.

In regard to the statement that ten million more gallons of whisky was used in one year as a result of prohibition, one is led to smile. If prohibition really results in an increase in the amount of liquor used, why in the world does not this liquor dealers' association turn in and help us, tooth and nail? I have not the figures at hand, but I am quite sure the consumption of liquors of all kinds is on the decrease. Brewers are making assignments, and quitting the business. Great stocks of liquor are accumulating, and nobody seems to know what is going to be done with them unless we use them for running automobiles.

* In regard to the above ten million gallons, I think I have seen it stated somewhere that more whisky is being used as a result of cutting off the beer and the ruin of the breweries. The whisky, on account of its smaller bulk, can be easily kept out of sight; but notwithstanding the above explanation I am quite sure we have honest statistics to the contrary in regard to whisky.

In regard to Kansas, I clip from the *American Issue* for May 27 the following:

PROSPERITY STATISTICS.

	Missouri	Kansas
Age of states (years).....	95	55
Population	3,300,000	1,690,000
Saloons	4,000	
Per capita expenditure for liquor \$ 24.00	\$ 1.48	
Criminals to 3000 population.....	10	1
Bank deposits per capita.....	\$ 20.00	\$ 140.00
Assessed property valuation		
per capita	\$300.00	\$1700.00
Automobiles to every 100		
farmers	1	20

In Kansas there are 131 towns of 1000 population which own electric-light plants, water and sewer systems, splendid sidewalks and public schools, without a single cent of revenue from the liquor traffic. In Missouri there are scores of towns of from 1000 to 4000 population with open saloons paying a high license, where they have no electric-light plants, no water or sewerage, and poor sidewalks.

In the panic of 1907, Missouri, with all her big banks, was unable to send one penny to the East. Kansas banks sent \$50,000,000.

Kansas spends \$38,000,000 less per year for intoxicants than does Missouri. This explains the prosperity of Kansas.

Please notice in Missouri there is only one farmer out of a hundred who has an automobile, while in Kansas one farmer out of five has one; and I think that, if you will look into their homes and over their farms, you will find everything in proportion.

Now, our good brother who writes the letter at the opening of this article wants to know *who* tells the truth. And this brings up something that I have long wanted to talk about. Who are most likely to tell the truth*—the liquor party who have no other motive in this fight than to increase their sales, and make *more money*? Does not the text I have chosen from Isaiah fit them pretty closely if not exactly?

We have made lies our refuge, and under falsehood have we hid ourselves.

They make a feeble pretense of wanting to benefit humanity. As the temperance papers have had much to say in regard to the suffering wives of intemperate men, the liquor party gives a letter that purports to come from a suffering wife. She does not exactly say that prohibition brought about all her troubles and destitution, but they try to make it appear that way. Here is the wife's(?) letter:

* Let us pause right here, friends, and take a square look at the matter. Shall we believe these weekly sheets sent out by the liquor party—a party that made and kept Ohio wet simply because the slum voters of the great city of Cincinnati overwhelmed us? Shall we let them rule the whole state of Ohio in opposition to the schools and churches, and the Christian people? Shall this slum element, perhaps half drunk when they vote, be believed, and their words be accepted as truth in opposition to the devout Christians who make it their daily prayer as given in that beautiful Psalm, "Search me, O God, and know my heart; try me, and know my thoughts, and see if there be any wicked way in me, and lead me in the way everlasting"†

A WIFE'S PLEA.

The entire state of Tennessee is "dry"—that is, unadulterated liquor cannot be sold openly. But bad whisky and other injurious substitutes may be obtained in "blind tigers."

The following is a letter from a heartbroken wife to the *Memphis Press*:

Editor the Press:—Why don't the administration close the dives in the city? Why don't they stop the sales of whisky? You can get it in restaurants, all you want. Gambling is going on in every corner, and the police know it. The chief knows it.

My home is wrecked, and my life is ruined. My husband has drunk until he has lost his mind and left his home and wife without one bite to eat, or one cent to buy anything with—running after those gambling-hells and rotten whisky.

Will the good people of this town stand for it? My husband was one of the best men in the world until this blind-tiger business started.

For God's sake, close these gambling-hells and blind tigers.

From a wife who has suffered and is today without a dollar.

Here is a clipping, also from the *American Issue* that bears on the subject:

MAKING IT HOT FOR THE CRIMINAL LIQUOR INTERESTS.

Last week special deputies acting under direction of the Attorney General, raided places in Girard, Ala., where liquor had been stored by bootleggers with a view to distributing it thruout Alabama and neighboring states. Girard is just across the river from Columbus, Ga., and offered natural advantages for the importation of contraband whisky.

The first day's raid netted the officers' liquor seizures to the value of \$265,000; the second day \$109,000, and the third day \$100,000.

The Governor of the state sent a company of militia from Opelika to guard the liquor which the officers put in storehouses for safe keeping. An attempt was made by the liquor interests to enjoin the state from removing the liquor, but Chancellor Lewis refused the injunction.

Just think of it, friends—toward half a million dollars' worth of liquors confiscated! No wonder it requires the militia to protect it; and the question comes up as to what is going to be done with all this confiscated liquor. Won't we be obliged to get it in shape so we can use it in our automobiles in place of gasoline, which is now going up so fast?

Now, in closing let me illustrate the point I am trying to make by an incident that happened years ago.

A beekeepers' convention was held somewhere in the West in conjunction with a state fair. Our good friend E. Whitcomb, of Nebraska, was one of the managers of the state fair. Back in those old days they had booths for selling beer, running in full blast at the state fair. Kegs of beer were exposed right out in daylight with great blocks of melting ice resting on them so as to give the multitude a "cool drink." As Mr. Whitcomb was one of the managers I went to him and remonstrated. He replied something as follows, so far as I can remember:

"Mr. Root, we try to be fair, and take a

medium course on all these questions where there are so many differences of opinion. It is true we have given the saloon-keepers the privilege of having a stand to sell beer; and to be fair about it we gave also the W. C. T. U. and the Anti-saloon League the privilege of selling or giving away their literature. We think it best to let the people see *both* sides. Now, in view of the fact that we get quite a lot of money from the beer-stand, and not a cent from you temperance people, we think *you* surely ought not to complain."

Several temperance and Christian people were with me when I made my plea; and as our good friend Whitecomb was very busy, the matter was dropped right there; and ever since that time I have wondered that so many good people should get the idea into their heads, or let it get into their heads, that the liquor party is on *one* side of a debated question, and that the Anti-saloon League is on the *other* side, taking it for granted, without giving it a thought, that both sides were after the money that was in it. I think the world is getting past this notion, however; and before I forget it I wish to mention that, shortly after that state fair, friend Whitecomb was soundly converted, and he came out in print right on the pages of *GLEANINGS*, announcing his stand for the Lord Jesus Christ and for temperance, and for everything else that benefits humanity. I notice that he is still holding to the faith, and writing articles in the *Independent Farmer* for the benefit of humanity. The wets are after the dollars and dimes and nickels. They seldom have the cheek to *claim* that they are after anything else. The temperance people are giving their money, year in and year out, with but little hope of getting any of it back here on earth; and notwithstanding the discouragements and misrepresentations, and notwithstanding the falsehoods (that it seems impossible to refute as fast as they are uttered by the enemy), we are still holding our faith and courage.

Perhaps I might mention the fact that the A. I. Root Co. has, in times past, given something like \$25,000 to the Anti-saloon League with but little expectation that we should ever get it back—at least in *dollars and cents*. But we still have faith enough to keep on, because we believe the promise that "bread cast on the waters" shall (perhaps long years afterward) bring its reward; and while it may be true, as I said above, that we shall never get a return of treasure here on earth, we shall get something a thousand times better—"treasure laid up in heaven."

"WAR ON CHRISTIAN PRINCIPLES."

Whosoever shall smite thee on the right cheek, turn to him the other also.—MATT. 5:39.

Just after my article in the June 1st issue, entitled "Getting Even," and "War on Christian Principles," I saw an account in a daily paper of two prominent men, both of whom, I believe, occupy high offices, and are well known to the world. It seems that, by some mistake, each one of the two had engaged a certain section in a Pullman car. Of course it was a mistake, as such mistakes will sometimes happen. Instead of showing a gentlemanly and Christianlike spirit, each one demanded what he paid for, and each had a receipt for the same. After a wordy fight, one slapped the other on the face, and was afterward sued for \$25,000. After an expensive lawsuit the plaintiff got a verdict of 25 *hundred* dollars. Now comes the question, "Is it possible that neither of these two prominent persons has ever heard of turning the other cheek also? Or is it true that the war spirit has so permeated the whole wide world that two prominent men—men occupying high places in the state of Ohio, and perhaps in the nation, seemed to be entirely ignorant of the fact that citizenship, to say nothing of Christianity, demands that we behave ourselves in a gentlemanly and Christianlike way, especially in the presence of the traveling public."

Years ago, when traveling thru the Black Hills of South Dakota, something similar happened. Two men had the documents to show that they had paid for a certain section in a crowded Pullman car. The porter could not help them, and so they sent for the conductor. The conductor was new at the business, but did everything in his power to quiet the tumult. He offered each one of the belligerents another berth near by; but both declared in substance that he had paid for that particular section, and *was going to have it*, no matter *what* it cost. They were evidently men of means and of education; but the two kept up their jangling until toward midnight. As my berth was close by I could not get to sleep. I myself tried my hand as peacemaker, but it seemed to make them worse. I do not know how it *finally* ended. I became pretty well acquainted with the Pullman conductor, and I really pitied him with my whole heart. Now, here is the saddest part of it: By mere chance I ran across this same conductor several weeks afterward. I told him I hoped he had not had any similar experience since the incident I mentioned. His reply was, "Why, Mr. Root, I have had the same thing over and over again, and even *worse* 'rackets' than the one you saw."

The above would indicate that the Pull-

man-car management ought to have some better system in order to avoid such mishaps; and still more important—yes, vastly more important—we ought to have the apostles of the Lord Jesus Christ scattered like the salt in the parable all thru business and thru the great traveling thoroughfares, to urge all mankind, little and great, to be ready to turn the other cheek also before getting into quarrels over the merest trifles like the one I have described. What an easy thing it would be in such cases to show forth a Christian spirit to all about us and say, "My good friend, stay where you are. Do

not be worried a bit. No doubt the management will give me another section or berth just as good!"

Now, friends, to come right down to the practical point, how many of you whose eyes rest on these pages will hold yourselves in readiness to show forth a Christlike spirit just as soon as an opportunity occurs, especially when it occurs where there are crowds of lookers-on ready to take sides? Are *we* who profess to be followers of the lowly Nazarine ready to show forth to the world the grander beauties of "war on Christian principles"?

HIGH-PRESSURE GARDENING

OUR GARDENING AND FARM PERIODICALS.

I have already expressed the thought that it cheers my heart to run over hastily the beautiful farm periodicals from the different states—not only for their intelligent teachings in the line of agriculture, but their high moral tone. I have yet to find a genuine farm paper on the wet side. Of course there occasionally comes out a "make-believe," put out by the wets.

Now just a word about tilling the soil. Here is something from the *Kansas Farmer* for May 27, on the outside cover; and it is such good sound sense I think it will pay you to read it over and over.

Tillage is plowing, harrowing, dragging, disking—anything done to stir the soil, either before or after the planting of the crop.

The principles of good tillage are practically the same for all conditions:

1. Stirring the soil breaks it up. The smaller the particles of soil the greater the area the root hairs or "mouths" of the plant have to "graze" on. Good tillage gives the crop more soil surface on which to feed without increasing your taxes.

2. When fresh vegetable matter is present, stirring the soil tends to make more plant food available. The organic matter is brought into closer touch with the mineral particles of the soil, and plant food is set free by chemical action as the vegetable matter rots down.

3. Air is as necessary for the roots of plants as for the leaves. Plants die if there is no air in the soil. Tillage aerates the soil, supplying oxygen, which is used directly by the soil organisms, and nitrogen, which is used by legumes by means of the nitrogen-gathering bacteria which live on their roots.

4. Tillage tends to regulate the water supply in the soil. Well-tilled soil absorbs rain more rapidly than does a hard soil, and permits a freer circulation of moisture brought up from below by capillary action, such as occurs in a lamp-wick. Like a sponge, it takes water more quickly and stays moist longer than does soil that is packed hard.

5. Tillage kills weeds.

Briefly summed up, then, we till to make a home for the growing plant, to set free plant food, to aerate the soil, to get and use moisture, and to kill weeds.—CARL VROOMAN.

And here is a new periodical from away off in San Francisco. On the beautiful bright illuminated cover we read: "Little Lands in America." Our older readers will remember, perhaps, that years ago I had a series of articles headed "How to support a family on one-fourth of an acre." Of course the quarter-acre was to be mostly covered with glass. The same thing is now incorporated in a chapter or two in our tomato-book. Well, just below the heading of this little magazine we read: "A national magazine edited by William E. Smythe. Devoted to the most valuable of all arts as revealed in the prophetic vision of Abraham Lincoln—the art of deriving a comfortable subsistence from the smallest area of soil."

The above is a revelation to me. If Abraham Lincoln did give us that beautiful thought about getting a living on a little plot of ground, say out in the back yard, I shall have still more reverence and respect for his memory than ever before.

Just below the above there is a picture of a honeybee, and under it the legend "The honeybee earns \$400 a year in your back yard." The first article in the journal for April is headed "What do you know about bees?" It is quite well illustrated. The price of the magazine is \$1.00. The address is 504 Sharon Building, San Francisco.

By the way, "A little land and a comfortable living" is now receiving additional emphasis from the boys' and girls' clubs. The *girls* especially, of the whole United States (or at least nearly so), are now striving to see who can make the most money on one-fourth or even one-sixth of an acre. I need not copy the reports here, because our various periodicals are full of them. Not only have wonderful results

been achieved by girls in their teens, but several girls under fifteen have done wonders. I think I saw in one of our periodicals a picture of a girl only thirteen years old who had made something like forty dollars in growing and canning tomatoes on only a sixth of an acre.* Now, you need not say these stories were all "made up," for you can see it done in almost every progressive neighborhood; and if you live in a city, by taking a little pains you may see what is being done in a similar line in the boys' and girls' gardens on vacant spots of ground. The owner of the ground usually not only lets it to poor people free of charge, but plows and cultivates it so it will be in good shape for gardening, and sometimes furnishes manure and fertilizers. If a man has a piece of real estate in a growing city, it is nothing strange if it should transpire that he gets a better price for it when it is covered with vegetables and flowers than if it is left to grow up to unsightly weeds. May God bless the boys and girls who are in love with modern agriculture; and may the modern agriculture ultimately lead them to get in love with the great Father above who gave us this beautiful world with its wonderful possibilities along the line of agriculture.

I have given you pictures during the winter of my Florida garden; and some of you may wonder what I am doing here in Medina on this last day of May. Well, I have not done very much as yet, because the ground has been too wet to work; and in our Medina clay soil that means quite a little more than it does down in Florida, where one can always get to work two or three hours after the heaviest kind of rain-storm. I have peas up that are doing very well; but my sweet corn, planted at the same time, has, a great part of it, rotted in consequence of the cold and wet. The Golden Bantam, as heretofore, stands bad weather very much better than the other varieties.

A year ago I spoke to you about a hand cultivator to be run by a motor. There are several such machines now on the market; but they cost about \$150, and weigh pretty well toward 500 pounds. I have got hold of something that, for an old man like myself, I think is better than a motor cultivator. In fact, it is very much simpler. It is a little hand cultivator that I just bought of Sears, Roebuck & Co. It weighs only 20

pounds, and it cost only \$1.95. It not only pleases me because of its lightness, but the tools that go with it are such hard-polished steel that the result is, the tool is almost as smooth as glass. It slides into the dirt, even if it is damp, and the dirt slides off from it. This is a wonderful improvement. I might have thought of it long ago, for the reason that my favorite implement in gardening is a large-sized enameled spoon. This spoon is always clean because it is so easy to rub off the soil when you are thru cultivating or when you are done using it. I prefer my big spoon to any kind of trowel. In stirring the soil around a plant, or in lifting little plants from the seed-bed to be put out in the garden, the spoon is about the handiest tool I ever got hold of. If I lay it down and forget where I left it, I am like a fish out of water, as the expression goes.

A word more about the cultivator. I have been using hand cultivators that cost four or five dollars. But this little light cheap cultivator I have mentioned is for me away ahead of any of them. Of course it has no arrangement for sowing seeds, etc., and I do not believe I like a combined tool. I like to have every tool made for a particular purpose with as few loose attachments as possible to get lost and require time in changing and adjusting.

Perhaps you wonder why I do not say a word about the maple sugar I mentioned last year, as a "substitute" for an electric or gasoline motor. Well, the maple sugar does not always answer just right. Perhaps when one is taking strong muscular exercise day by day he can stand a fair amount of sugar; but where one has to spend a good portion of his time sitting in the office, as I am now while dictating this, he had better be careful about *too much* sweet; and *no* sweet (nor anything else, for that matter) between meals.

THE STRIPED SQUASH AND MELON BUG.

Mr. Root:—I was quite interested last year in the discussions and remedies to prevent the devastation of the striped vine-bug. This may not be just the proper name for it, but I think you will understand the fellow I mean. At that time, I thought of writing you; but fearing it would be too late to be of benefit for that year, I decided to wait till the early spring, and I feel sure the remedy that I here offer is a success under any and all conditions. It is not my own invention, neither have I any interest in either of the ingredients used, which consist of air-slacked lime and either coal oil or turpentine, the lime to be moistened with the liquid till it is highly scented, and then sprinkled or sifted on the hills. When scattered over the vines where bugs are thick on them it seems that each individual bug tries to be the first to clear the premises to get away from it. I have used both the oil and turpentine, and see little difference in results. This is what the R. M. Kellogg people use for their melons, I have been told, and that is the way I found its virtues.

* I find the following in *Farming Business* for June 5:

Olga Chick, of Ferguson, Ky., was awarded the first prize in the Canning Clubs of the state. In the summer of 1915 she raised 5944 pounds of tomatoes on one-tenth of an acre, and canned 1075 cans of tomatoes alone. Her work netted her \$121.

I told you last winter when visiting you at Bra-dentown about their melon crops; and from my window as I write, just across, are their cold-frames filled with pint berry-boxes set solid, and two to three melon-plants now up in each box, some starting the second leaves. I was over at noon to investigate for this report, and took measurements of their beds. I find there is 18,024 square feet under glass, and all solidly filled with the small boxes with plants and seeds, as a few of the latter are not up yet. These boxes are to be transferred to hill spaces in the field at the proper time. Their fields are marked off one way eight feet, and the cross four feet; then in placing the plant boxes each alternate four-foot mark is missed in opposite rows, so that in cultivating it makes rows one way four feet apart and eight the other. This plant is only a part of their fields for this year. Bugs do not respect their plants above their neighbors, so they would not use a remedy that is not a sure thing. The lime is a benefit to the plant life in the land. They now have 120 acres under overhead irrigation, and working this dry weather. As you spoke of so doing, you had better come over and see them this summer.

Three Rivers, Mich., May 11. M. L. BREWER.

My good friend Brewer, I have used kerosene on sawdust, and at first I thought it was going to do the business; but after a while the bugs became so greedy, at least here in Medina, that they did not pay much attention to it. Then I tried strong tobacco dust, and that did very well until we had a rain. I finally saved my plants, but it was only by eternal vigilance. I have in mind this Kellogg institution; but here in Medina, at this date, June 3, we have been having such abundant rains that I cannot even get out to try my new Ford automobile.

PRICKLY PEAR IN AUSTRALIA.

Mr. Root:—For about a year I have been a subscriber of GLEANINGS. I always read it carefully from one end to the other, and never get tired of it. You must not think I am a great beekeeper, for I am only starting; but, beekeeper or not, and even if it cost me my last penny, I must have GLEANINGS. But now for the reason of this letter:

Yesterday I received GLEANINGS for June 15, and on page 515 I read something about the food value of the prickly pear. You must know that I am a Dutchman, and left my own country five years ago. When I came here I had some money and took up some land—the piece where I live now. That land was infested with prickly pear; but I thought it was possible to clean that rubbish off. You should know that I have to clean the pear or I lose my land. But after five years I have cleaned only about 30 acres out of 130. We lived as carefully as possible; but, all the same, I lost every penny I had on that stuff; and so it is, not only with me but with all my neighbors; and not only my surrounding people are suffering, but hundreds and hundreds of selectors who took up prickly-pear land. Some acres cost up to \$75 to \$100 for the first cleaning. The next year that same acre will be like a wheatfield, so thick is the young pear coming up again from seed. In a word, the prickly pear is the pest of Queensland.

I would not have stopped here at all had not an American, Mr. Roberts, come here to Queensland with a new invention to clean pear with a gas. I managed to buy an outfit for gas, and that is doing good work. The densest pear can be treated now for \$3.60 an acre, so that is a blessing.

This letter is to give a warning to people about prickly pear. It is believed here generally that the pear is practically good for nothing. It grows anywhere and everywhere on good and bad soil, in the sun and in the shade, with rain and without rain, even on rocks and on some stumps and trees. Birds, cows, wallabys, kangaroos—in fact, all animals that eat the fruit, spread the seed, and so, notwithstanding the fact that thousands of acres are cleaned every year the pear in Queensland is increasing at the rate of one million acres a year.

There is an agricultural bank here from the government for helping the new settler on the land with some money to carry him over the first few difficult years. But that bank decided a few months ago not to lend a penny to prickly-pear selectors, so frightened is even the government at this pest. They have lost too heavily on prickly-pear selections; therefore my question, "Must we not give warning to other countries, or are we all mistaken, and is pear a valuable plant? Then, again, is it paying to make prickly pear into fodder? Of course this has much to do with prices of land and wages. Land runs here from about \$10 to \$50 an acre, and wages are about \$2.00 a day.

Perhaps you will be so kind as to give this a thought; and if you think it is a pest, please tell your own folks through your paper; and if you think it can be made into paying fodder, please be so kind as to write me.

I hope you will excuse me for my broken English; but you must remember it is not my own language.

W. MERTENS.

Gayndah, Queensland, Australia.

Many thanks, my good friend, for your kind letter. No doubt the variety of prickly pear you have is a nuisance; but my impression is that the spineless cactus we have here, and which is selling as high as several dollars a leaf, is quite a different thing from your prickly pear. I have gone over all of your letter most carefully, but do not find a word in regard to the spineless variety. The spineless now growing in my garden is perhaps a foot wide and a couple of feet long—no spines whatever; in fact, you might give them to the baby to play with, and it has been abundantly demonstrated that cows, horses, sheep, pigs, and even poultry, eat them with avidity. It must be your variety is different from the new kinds we have here, or that your soil is in some way peculiar.

After you eradicate this wild prickly pear, could you not grow the spineless kind? Has anything of that sort been tried so far as you know? I should be glad to hear from you further.

SPINELESS CACTUS IN OREGON.

In regard to the spineless cactus, I got some years ago. I paid a big price for them. I took the best of care of them, and expected wonders; but in return they only dragged along for a year or two, and finally died. I think it is too wet and cold here.

You know Burbank sold out to a company, and they tried to get me to take shares; but I wanted to see what the thing was worth before investing money in it. While they may do all right in a warm dry climate I am satisfied they are not a success in this part of the country.

Laurel, Ore., Dec. 2.

MRS. SARAH PARR.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	34.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

Q-U-E-E-N-S!

THREE-BAND ITALIANS, BRED FOR
HONEY AND GENTLENESS, FROM
IMPORTED STOCK

	1	6	12
Untested	\$0.75	\$4.25	\$8.00
Select untested	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, \$3.00 to \$5.00.

Bees in 1-lb. packages, \$1.25, without queen; if queen is wanted, add price.

Every queen PURELY mated; safe delivery and perfect satisfaction guaranteed.

N. Forehand, Fort Deposit, Ala.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick

With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,
Queen-breeder Route 1, MORGAN, KY.

55c -- Golden and 3-banded Italian Queens -- 55c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested (1), 55 cts.; 12 or more, 50 cts. each. 1 lb. bees, \$1.25; 2 lbs., \$2.00; 1-fr. nucleus, \$1.25; 2-fr., \$2.25, Full colony 8-fr., \$6.00; 10-fr., \$7.00. No queens at these prices.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

O. O. Miller, Marengo, Ill., March 1, '16.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, \$1.00; 12 for \$10.00; Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	1.75 " " " 1.25
Tested	2.50 " " " 2.00
Select Tested	3.50 " " " 3.00

Delivery will begin about June 1.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio



ITALIAN QUEENS

Three-banded

From June 1 to November 1

Only 75 cts. each; 6, \$4.00; 12, \$7.50; tested, \$1.00; 6, \$5.00; 12, \$9.00; of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Send for my free circular and price list.

JOHN G. MILLER, CORPUS CHRISTI, TEXAS
723 South Carrizo Street

Italian Queens with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

Italian Queens --- Three-banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$2.00 each; \$20.00 per dozen. Breeding queens, \$5.00 each. Special prices on large orders. Our customers must be pleased. Safe arrival guaranteed. Send check with orders to

J. W. Taylor & Son, Beeville, Bee Co., Texas
Prices on nuclei on request.

THREE-BAND ITALIAN QUEENS

They are bred from imported mothers. They are the best for honey-producing purpose; very gentle, not inclined to swarm. If you buy once you will buy always. GUARANTEE that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

Untested, . . . April 1 to July 1,	1, \$0.65; 6, \$3.75; 12, \$7.25
Select Untested, . . . "	1, .90; 6, 5.00; 12, 9.00
Tested, . . . "	1, 1.25; 6, 7.00; 12, 13.00
Select tested, . . . "	1, 2.00; 6, 11.00; 12, 20.00

L. L. Forehand, Fort Deposit, Alabama

Italian Queens

Untested during June \$1.00 each, 6 for \$5.00, 12 for \$9.00. After July 1, 75 cts. each in any quantity. Satisfaction in all cases or money refunded.

L. H. Robey, Worthington, W. Va.

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, \$1.00; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.

BEE SUPPLIES

Send your name for new 1916 catalog.

Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

THE COAST LINE TO MACKINAC DETROIT CLEVELAND, BUFFALO, NIAGARA FALLS TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A REAL VACATION The Water Way is the Only Way

The Great Lakes is the mecca for particular and experienced travelers on business and pleasure trips. The D. & C. Line Steamers embody all the qualities of speed, safety and comfort. The freedom of the decks, the cool, refreshing lake breezes, the commodious state rooms and unexcelled cuisine, make life aboard these floating palaces a source of enjoyment.

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placed anywhere, attracts and kills flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or drip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

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Good second-hand, fit to refill with honey for use again. . . .

For shipment from New York, Philadelphia, or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

The A. I. Root Company

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SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post. Start small, grow big. Many women customers. **PLYMOUTH ROCK SQUAB CO., 816 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**

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SUBSCRIPTION RATES: \$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

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Canadian postage on each of the offers above, 30 cts. extra; foreign postage, 60 cts. extra.

Gleanings in Bee Culture

The A. I. Root Co., Publishers

Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Amber honey, 7 cts. per lb. Sample, 10 cts. C. R. ALLEN, Vicksburg, Miss.

FOR SALE.—Buckwheat honey at 7 cts. in new 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7 cts. per lb.; also comb honey in 4¼ x 1½-inch sections, f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

RASPBERRY HONEY.—Thick, rich, and delicious, put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMAYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less car lots. J. E. HARRIS, Morristown, Tenn.

WANTED.—To buy a quantity of dark or amber baking honey. State price, and source gathered from. A. G. WOODMAN, Grand Rapids, Mich.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices. SUPERIOR HONEY CO., Ogden, Utah. "Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BUEDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

Full-drawn combs on wired sheets of foundation, 20 cts.; 10-frame dovetailed hive-body, painted, 50 cts. E. E. PRESSLER, Williamsport, Pa.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Several hundred eight-frame standard supers for 4¼ x 1½ sections, cheap. THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

The Stanley improved cylinder cage with queen-cells, postpaid, 6 cts. each, or \$5.00 per 100. Write me for queen-breeders' supplies. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

EASTERN MICHIGAN beekeepers especially are invited to send for my catalog of Root's goods and specialties. Try me for satisfactory goods, prices, service. ARTHUR RATTRAY, Almont, Mich.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash, 27 trade. J. F. ARCHDEKIN, Bordlonville, La.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea! Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

WANTS AND EXCHANGES

FOR EXCHANGE.—Four white Indian Runner ducks and one drake, show stock and winners, for two eight-frame hives of Italian bees. E. B. BROWN, box 323, White Plains, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—A 36-acre ranch, free irrigation water, five-room house, honey-house, and out-buildings, all practically new; good home orchard; 200 to 500 colonies of bees; two good locations. Time on part, for Sept. 15th delivery. J. G. PUETT, Collbran, Col.

VIRGINIA AND NORTH CAROLINA FARMS, \$15 per acre and up. Easy payments. Fruit, dairy, stock, climate, schools, churches, roads, markets, and neighbors of the best. Get our Farm Lists, Magazine, and other interesting literature, all free. Address F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. SEAGRAVES, Gen. Colonization Agent A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50. J. B. CASE, Port Orange, Fla.

Try my MAPLEWOOD queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

FOR SALE.—Northern-Ontario-Bee-Diseaseless District Bees. Hardest, healthiest. Prices will suit you. RAHN BEE AND HONEY CO., Haileybury, Ont.

FOR SALE.—We offer to some one in this or nearby state, 50 to 300 colonies, 8-frame, first class. THE E. F. ATWATER CO., Meridian, Ida.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Northern-bred Italian queens of the E. E. Mott strain. June, untested, 90 cts.; July, 75 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

Ready to mail now. Tested Italian queens at 75 cts.; selected for \$1.00. JOHN KOENIG, 617 Monroe Ave., Evansville, Ind.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—1 lb. 3-band Italian bees. \$1.00; untested queen, 65 cts.; tested, \$1.00; select tested, \$1.25. Rosedale Apiaries. J. B. MARSHALL & SON, Big Bend, La.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb. D. L. DUTCHER, Bennington, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

Now booking orders for three-frame nuclei, Italian bees and tested queen; delivery June 1, \$4 each. Low freight, quick delivery, satisfaction. S. G. CROCKER, JR., Roland Park, Md.

FOR SALE.—Bright Italian queens at 75 cts. each; \$7.50 per dozen or \$60 per 100. Ready April 15. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowelltown, Tenn.

Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 70 cts.; 12, \$8.00; select untested, 80 cts.; 12, \$9.00; untested, July, 10 cts. off each; \$1.00 per doz. off. No foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

Golden Italian queens, bred strictly for business, that produce a strong race as honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 338J, Rt. 6, San Jose, Cal.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y. East End.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Silver City, N. C.

Choice Italian queens, warranted, 75 cts. each. Tested, \$1.25; breeders, \$2.50 each; virgins, 40 cts. each; 3 for \$1.00. C. W. FINCH, Phone Haymarket 3384, 1451 Ogden Ave., Chicago, Ill.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Fine Italian queens, three-banded; best that can be produced. Safe arrival and satisfaction guaranteed. Untested, 60 cts. each; 12, \$7.20; tested, \$1.00 each. J. F. ARCHDEKIN, Bordlonville, La.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Indianaola Apiary offers bees and queens for sale for 1916 as follows: Tested queens, \$1.25; untested, 75 cts.; 1 lb. of bees, \$1.00; one-frame nucleus, \$1.25. Add price of queen if wanted. J. W. SHERMAN, Valdosta, Ga.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. O. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

ITALIAN QUEENS.—For the balance of the season we will sell untested queens at 60 cts. each or \$6.50 per dozen; tested, \$1.00 each or 6 for \$5.00. Safe arrival and reasonable satisfaction. Address W. J. FOREHAND, Ft. Deposit, Ala.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

Queens now ready. Golden and three-band Italian queens. I shall do my best to fill all orders promptly. If any queen fails to give satisfaction I will replace her free. Untested, 75 cts. each; six for \$4.00. Send all orders to E. A. SIMMONS, Greenville, Ala.

Queens by return mail, or your money back. Guaranteed purely mated three-banded Italians, Northern strain, bred for gentleness, honey-gathering, and wintering. Select untested, \$1.00 each; six for \$5.00. Select tested, \$1.75 each. Write for price on large orders. State inspector's certificate. Satisfaction guaranteed. J. M. GINGERICH, Kalona, Iowa.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

Rhode Island Northern-bred Italian queens, \$1. Circular. O. E. TULIP, Arlington, R. I.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS THAT COUNT.—See our Adv. elsewhere in this issue. GEO. W. PHILLIPS, Lebanon, Ohio.

Fine Italian queens by return mail. Select golden and three-banded, lined to select drones. Hardy, prolific honey-gatherers. Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00. Six or more at dozen rates. No disease. Safe arrival. I positively guarantee every queen to give reasonable satisfaction.

CHAS. M. DARROW, Star Route, Milan, Mo.

ITALIAN QUEENS, Northern-bred, Three-banded, Highest Grade, Select Untested, Guaranteed. Queen and drone mothers are chosen from more than 600 colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, one, 80 cts.; 12, \$8.00; 100, \$55.00. Also bees by the pound. Send for circular.

J. H. HAUGHEY, Berrien Springs, Mich.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free.

J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

If you want a queen for that queenless colony, we can send it to you by return mail. Young tested queens, \$1.00, \$12.00 per dozen. Untested, \$1.00; \$9.00 per dozen. We breed the three-banded Italians only, and we breed for the best. Our thirty years of queen-rearing proves this. We never had a case of foul brood in our apiaries, and we guarantee every queen sent out by us.

J. W. K. SHAW & CO., Loreauville, La.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS.—I. N. BANKSTON, box 315, Buffalo, Tex.

Three-banded Italian queens guaranteed to please and to give results; 75 cts. each; 6 for \$4.25; 12 for \$8.00; 100 for \$65.00, in lots to suit; select breeders, \$5.00 each. One-pound swarm with fine queen, \$2.25 each; without queen, \$1.50 each. Write us your wants. We will give you a square deal. We are keeping up well with orders, getting them as we are. June will be the big bee month. Always give your express office when wanting pounds of bees. CURD WALKER, Queen-breeder, Jellico, Tenn.

LEATHER-COLORED ITALIANS.—Large, vigorous, three-band Italian queens that have proven that they can stand a severe winter, last winter being a test for them. For size, beauty, gentleness, and honey-gathering qualities they will surprise you. If you have foul brood, try them. It will be half the fight. All queens are guaranteed for a period of one year from date received. If they fail to please you, you get your money back. Prices: 1, \$1.00; 6, \$5.00; 12, \$9.00. No foul brood in my apiary nor near me. W. D. SELLERS, 242 Pine St., Lancaster, Pa.

FOR SALE.—Three-banded Italian bees. Three-frame nuclei with queen, \$3.00; without queen, \$2.25. We have more bees than we can manage, and can therefore supply you with the biggest, strongest nuclei you will be able to find anywhere. Our bees are all on the standard-size Hoffman frames, combs built on full sheets of foundation, and on wired frames. We are now shipping nuclei, and can fill your orders promptly. Bees guaranteed to be free from disease.

HYDE BEE Co., Floresville, Tex.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & CO., Hayneville, Ala.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N.J.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

POULTRY

FOR SALE.—Fourteen thorobred Sicilian Buttercup hens and one rooster. First \$20 takes the lot.

L. S. GRIGGS, 711 Avon St., Flint, Mich.

HELP WANTED

WANTED.—A single man to work 140 colonies of bees on shares; one with experience, and steady; good locality. J. J. WALKER, Rt. 5, Ogdensburg, N.Y.

MAN WANTED.—At once to work with bees. State age, experience, and wages. Three or four months' work. Address THE ROCKY MOUNTAIN BEE Co., Forsyth, Mont.

CONVENTION NOTICES

A field meet for the beekeepers of Southeastern Iowa will be held at the queen-rearing yard of J. I. Danielson, Fairfield, Iowa, July 27. All are urged to come.

EASTERN MASSACHUSETTS CONVENTION.

The regular monthly and annual meeting for election of officers, for the season, of the Eastern Massachusetts Society of Beekeepers, the original Massachusetts society, was held at room 15 Old South Building, Boston, on Saturday April 1, 1916.

The speaker of the day was Miss Dorothy Quincy Wright, of Lowell, who gave us an interesting talk on "Planning the season's work—efficiency methods applied to beekeeping."

The new president, who was unanimously elected, is Prof. Gladstone H. Cale, of the Essex County Agricultural School, at Hawthorne, Mass., who, upon taking the chair, thanked the members for the honor, and pledged his best efforts for the carrying-out of the work of the society.

Mr. Thomas J. Hawkins, 4 Emery St., Everett, the former president, was chosen secretary, and the Board of Directors are Rev. T. J. Horner, of Attleboro, Mass., chairman; Mrs. Susan M. Howard, of Stoneham, and Mr. Benjamin P. Sands, 1051 Old South Building, Boston.

THOMAS J. HAWKINS, Sec-treas.

The field meet of the Chicago-Northwestern Beekeepers' Association will be held at the home of W. W. Faulkner, 3000 N. Cicero Ave., Chicago, Ill., July 15, 1916.

Many things combine to make this an ideal place for a meeting of beekeepers. Besides being entertained by one of the most hospitable families in Illinois, we shall meet Mr. Faulkner, Sr., who is probably the oldest and one of the most successful bee-

keepers in the United States. Mr. Faulkner, Sr., is in his 100th year, and was born among the bees in Scotland. The family recently sold a large portion of their bee-range for over \$260,000. They still retain the buildings and ten acres of the best part of the farm, worth another \$50,000. The house stands on a ridge that was once the shore of Lake Chicago, which at one time covered the entire site of the present city. It can be reached by trolley from anywhere in the city for a five-cent fare. A basket dinner will be served by the queens that do not swarm, which we hope will attract enough drones to furnish an intellectual feast as well.

Chicago, Ill., June 6.

C. O. SMITH.

TRADE NOTES

SECOND-HAND FOUNDATION-MILL IN LOS ANGELES, CAL., FOR SALE.

We have for sale at our Los Angeles branch a 12-inch medium-brood mill in fair condition, with some defaced cells, but in good enough condition for years of service for a beekeeper who makes his own foundation. We offer the mill for \$15.00.

SWEET-CLOVER SEED.

We have several bargains to offer in sweet-clover seed. If interested, write us, stating the quantity you can use and the variety you prefer, and we will quote you and submit sample. We have some stock at Des Moines, Iowa, and Chicago, Ill., as well as Medina, and will quote bargain price to close out stock.

BUCKWHEAT FOR SEED.

The time is here for seeding buckwheat for a honey crop. We have here at Medina a limited supply of both Japanese and silverhull, which we offer at \$2.75 per 100 lbs., bag included, subject to previous sale. We can also furnish at the same price, and subject to sale, the Japanese variety from Ashland, Mo.

NO. 2 OR B GRADE SECTIONS.

Our surplus stock of B grade sections in the regular size, $4\frac{1}{4} \times 1\frac{1}{2}$, two beeway, is reduced to normal proportions. The new lumber on which we are now working is of excellent quality, and produces only a small proportion of B grade. We still have a good stock of B grade in plain sections of regular pattern; and as these are supplied this year at a reduction of 75 cts. per 1000 below A grade, they should be well worth using at this rate.

THE A. I. ROOT COMPANY, Medina, Ohio.

SPECIAL NOTICES

BY A. I. ROOT

GOOD BOOKS AT A GREAT BARGAIN.

Most of these books are old, but not all of them. They are offered at a bargain because they have accumulated, and do not seem to sell at the regular prices. First we have "Love: the Supreme Gift; or, the Greatest Thing in the World," by Henry Drummond. Some years ago this little book of 32 pages had a great sale, and created quite a stir in the world. The price was 10 cents. As we have 250 copies on hand, you may have one or more of them free of charge if you will send a stamp to pay the postage.

"The Revised Version of the New Testament." This was gotten out in 1881, when the New Version first appeared. It is a very pretty little book, printed with large type so old people can read it easily. It sold readily for 10 cents; present price 5 cents postpaid. We have about 300 copies.

In 1881, by request we made selections from the Home Papers, which had then been running for some six years. The original price was 10 cents. We have about 300 copies left, which you can have postpaid for 5 cents each. The book contains 48 pages, and includes gardening, poultry, and suggestions like those in several others of our books about what to do when out of work, and, first and last, more particularly, the kingdom of God and his righteousness. We have about 300 copies left, which we will furnish at 5 cents each as long as they last.

The next one is "Poultry for Pleasure and Poultry for Profit." This is a very pretty little poultry-

book with an illuminated cover. It has 48 pages and some very good illustrations. The price was 25 cents. We have some 20 copies left; and while they last you may have them postpaid for 10 cents. This little book ought to make any boy or girl happy who is getting interested in poultry.

"Silk and the Silkworm"—also 25 cents. It has 30 pages, illustrated. It will be sent by mail for 10 cents. We have 28 copies.

"Merrybanks and His Neighbor." This is a book of 210 pages, fully illustrated. This book is like our larger one ("What to do," etc.), written with the view of telling idle people what they may do to earn a living right around home. Nearly all the events mentioned in it are actual occurrences, but they were put in story form by A. I. Root over thirty years ago. The price was 25 cents; but you may now have it postpaid for 10 cents.

Here is another book—"The Story of Art Smith." I have made mention of it once or twice already. The book took such a hold on me that I could scarcely eat or sleep until I had finished it. The principal moral of the book is the account of how this boy, Art Smith, persevered and finally overcame more obstacles, accidents, and discouragements (mainly thru a lack of means) than any man or boy I ever heard of. The disappointments and disasters, it seems to me, would have set almost any other boy crazy; but, like Edison, he stuck to his hobby of making a flying-machine that would *actually fly*, until he finally conquered. The last I heard of him he was making flights in Japan. The boy had (and perhaps has yet) a praying mother. I hope the good woman is still alive. The price of the book is 25 cents; but as we have something like 80 copies left out of 100 we now offer it postpaid for only 10 cents.

"Injurious Insects of Michigan," by Prof. A. J. Cook. This book was first put out in 1874; and while improvements have been made in the way of insecticides, I believe this work of Prof. Cook stands with perhaps few exceptions as perfectly orthodox up to the present time. If I am correct, our good friend Cook was one of the pioneers in introducing the arsenite sprays for the destruction of the codling moth. The book contains 48 pages, and is abundantly illustrated. As we have 38 copies yet on hand we reduce the price, 25 cents, to only a nickel, for which we will send the book postpaid. It ought to be worth that amount to go over the early work of such an interesting writer as our old friend, who has done so much, not only for beekeepers but for the world at large.

Besides the books mentioned we have "What to Do, and How to be Happy While Doing it." This was a 50-cent book, bound in cloth; paper, 35 cts. We now offer it, bound in cloth, for 25 cents, and in paper for 15 cents. See A. I. Root's Special Notice, GLEANINGS for May 15.

We have also about 12 copies of the "New Agriculture," mentioned on the page referred to. This is really a valuable \$2.00 book, which we now offer for only 75 cts., because it is old. As long as the present copies last we will mail the book postpaid at the latter price.

THE 1915 YEAR-BOOK OF THE UNITED STATES BREWERS' ASSOCIATION.

The above is the title of a large book of 360 pages. It is put out by the United States Brewers' Association, and is gotten up without regard to cost, for the sole purpose of defending the brewing business. It is quite evident that they have spared no expense, and have employed the most able attorneys and men of all callings to help them to prove that the temperance wave is a mistake and a misrepresentation. It is not worth while to go over the arguments they present. It is quite evident, however, that they have, with much commendable study, looked up every "hook and crook" that would enable them to contradict or counteract the effect of the facts that temperance periodicals and temperance people are giving to the world. I will close this brief notice of the book by calling attention to a self-evident fact. The Anti-saloon League, our churches, our schools, our Endeavor societies, Sunday-schools, etc., are laboring for the sole purpose of protecting humanity, especially the boys and girls and the babies of the whole wide world. The brewers, on the contrary, are laboring and spending their millions for the "sole purpose" of holding their customers and keeping their breweries running so they can get more money from the unwary and unsuspecting.

SPECIAL BARGAINS

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE-HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of eight-frame packed 5 in a package, which we offer to close out as follows: YW 5/8, one story, eight frames, 12 packages, five hives each, at \$8.00.

NO. 2 OR B GRADE HOFFMAN FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

1 3/4 H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1 1/2-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTING OR CHUNK HONEY.

We are offering, while they last, the following bargains in nailed supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

200 D9/10, nailed and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100. 180 8/10 supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first two lots are the 5 1/2-inch supers with hanger cleats and shallow Danz frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

ALEXANDER FEEDERS FOR EIGHT-FRAME HIVES.

The Alexander feeder as we now make it is adapted to either eight or ten frame hives. Formerly we made a shorter length for the eight frame than for the ten-frame hive. In cleaning up old stock we find 300 of these eight-frame feeders which we offer, to close out, at half regular price—viz., 15 cts. each; \$1.35 for 10; \$11.00 per 100; \$30.00 for the lot.

TIN COMB-BUCKETS.

While these are listed in the catalog in one line at \$1.50 each, their convenience in carrying combs to the extractor shut up from robbers is not set forth. We have a surplus stock, and offer them, to reduce the number on hand, at \$1.25 each. You can place four Hoffman frames or five non-spaced frames of Langstroth size in each bucket.

JONES HONEY-KNIVES.

This is a form of honey-knife used largely in Canada, and preferred to the Bingham by those who have tried it. The blade is 1 1/2 inches wide, and a flat V or triangular shape. We had a lot made to supply a call we had, and still have in stock 28 of them. We offer them at 75 cts. each. Mailed as a pound parcel when packed.

TUMBLERS HOLDING 6 1/2 OZ., 40 DOZ. TO BARREL.

Having a surplus stock of honey-tumblers packed 40 dozen to barrel, including tin tops and wax-packed liners, we offer them for a short time, to reduce stock, at \$6.00 per barrel, or \$5.70 in 5-barrel lots, shipped direct from Medina.

SHIPPING-CASES FOR 12 AND 24 SECTIONS.

When we discontinued listing shipping-cases to hold 12 sections we still had quite a stock of various styles on hand, many of which are still in stock. We have also some of the older styles of cases for 24 sections of various sizes. We offer these various cases to close out at the following bargain prices. Here is an opportunity to lay in a stock of cases preparatory to the honey crop near at hand at very low prices. None of these cases, except as noted, are large enough to take sections with cartons or corrugated liners, except the bottom sheet. 12-lb. 2 or 3 row cases with 2 and 3 inch glass for the 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, 4 x 5 x 1 1/2 sections, packed 50 in a crate at \$4.00 a crate; packed 10 in a crate at 85 cts. a crate. A few crates of cases for 16 sections 4 1/4 x 1 1/2 at \$4.50 per crate of 50 or 95 cts. per crate of 10. A few crates of cases for 24 sections 4 1/4 x 1 1/2, and 4 1/4 x 1 1/2, and 4 x 5 x 1 1/2 at \$8.00 per crate of 50; \$4.00 per crate of 25, or \$1.70 per crate of 10. The 12-lb. safety cases, which we no longer list with safety cartons, and 2-inch glass for 4 1/4 x 1 1/2, 4 1/4 x 1 1/2; and 4 x 5 x 1 1/2 sections, per crate of 10, \$1.20; per crate of 25, \$3.00. Without cartons, but including corrugated liners and glass, \$4.50 per crate of 50.

NO. 2 OR B GRADE SECTIONS.

We have a surplus stock of B grade sections in all the commonly used sizes and styles, and are behind on orders for No. 1 or A grade in some kinds. To insure prompt shipment it may be advisable to order B grades if you can use that grade. In beeway style the B grade costs 50 cts. per 1000 less than A grade, while in the plain or no-beeway styles the reduction for B grade is 75 cts. per 1000. The loss from unusable sections in B grade is very little more than in the A grade. Try them if you have not done so.

TOBACCO DUST FOR KILLING INSECTS.

Fine tobacco dust is used for dusting on lettuce and other plants for killing the insects, as well as for fertilizer. We have two kinds of dust—the very fine, from ground stems, which we offer at 20 cts. for 10 lbs.; \$1.50 per 100 lbs., or a case of about 400 lbs. at \$1.00 per 100 lbs. We can supply, also, a much coarser dust from leaves, which is much stronger, at 50 cts. per 10 lbs., \$3.50 per 100 lbs.

FOR SALE.—1910 Model 4-cylinder 30 H. P. Reo, run only 15,000 miles, in fine condition. Is of racing type, with gasoline tank in rear, two-seated, no fenders. Gas lamps, no starter. Tires in good condition. Ideal car for running out to outyards and carrying light loads. \$200.00.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's
Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription.

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IN OHIO?—Then your orders will naturally gravitate to Zanesville, the Bee-supply Capital of the state.
IN WEST VIRGINIA?—The large supply-house nearest to most beekeepers in this state is at Zanesville.
IN WESTERN PENNSLYVANIA? — You are a next-door neighbor.
ELSEWHERE?—Zanesville service will yet commend itself to you as being the best obtainable.

The leading line of bee supplies, unsurpassed shipping facilities, years of experience, and painstaking care in packing and forwarding goods, fair and considerate treatment, all insure a degree of satisfaction that can scarcely be duplicated elsewhere.

If exasperating delays or otherwise unsatisfactory service have been your past experience, give us a chance to demonstrate the superiority of the service we offer.

Ask for our free illustrated catalog.

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Distributor for the largest bee-supply factory in the world

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Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ **THE DEVELOPMENT OF THE APPLE FROM THE FLOWER.** By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ **CATALOG OF BEEKEEPERS' SUPPLIES.** Our new complete catalog, mailed free to any address on request.
- ☐ **THE BEEKEEPER AND FRUIT-GROWER.** Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ **SPRING MANAGEMENT OF BEES.** The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ **THE USE OF HONEY IN COOKING.** Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ **BEES AND POULTRY,** how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ **HOW TO KEEP BEES.** A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ **THE A B C OF BEE CULTURE.** A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ **WINTERING BEES.** A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cts.
- ☐ **THE BUCKEYE HIVE,** or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ **SWEET CLOVER,** the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ **ADVANCED BEE CULTURE.** A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.
Please send me the items checked above.

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HONEY - CANS

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield Co.

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BEEKEEPING

By Dr. E. F. PHILLIPS

One of the best bee-books that has been written in this decade.

Regular price \$2.00; or clubbed with "Gleanings in Bee Culture," one year, for \$2.50; or with our "A B C and X Y Z of Bee Culture," \$3.50.

Canadian Postage, 30c extra; Foreign Postage, 60c extra

One would naturally suppose that its author, a scientific man—a trained entomologist, and one who is constantly associated with some of the best scientists of the Government—would turn out a book that would be so technically scientific that it would be beyond the reach of the average beekeeper. This is not the case. While it is scientific, it is couched in such language and style that the average reader can easily understand it. But when we say it is scientific, we might, without further qualification, convey the impression that it is not also practical. As a matter of fact, the book is intensely so, because Dr. Phillips has traveled all over the United States, mingling with the best beemen in the country, and he has had, during several years back, one of the best beekeepers in the country, Mr. George S. Demuth, as his first assistant.

The A. I. Root Company, Medina, Ohio

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July

Untested Queens 1 for 60 cts.; 12 for \$ 7.00

Tested Queens 1 for \$1.05; 12 for \$12.00

Select Tested Queens 1 for \$1.75; 12 for \$19.25

Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.

August and later

1 for 55 cts.; 12 for \$ 6.00

1 for \$1.00; 12 for \$10.75

1 for \$1.65; 12 for \$18.00

Add price of queen. If any of our untested queens should prove to be mismated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

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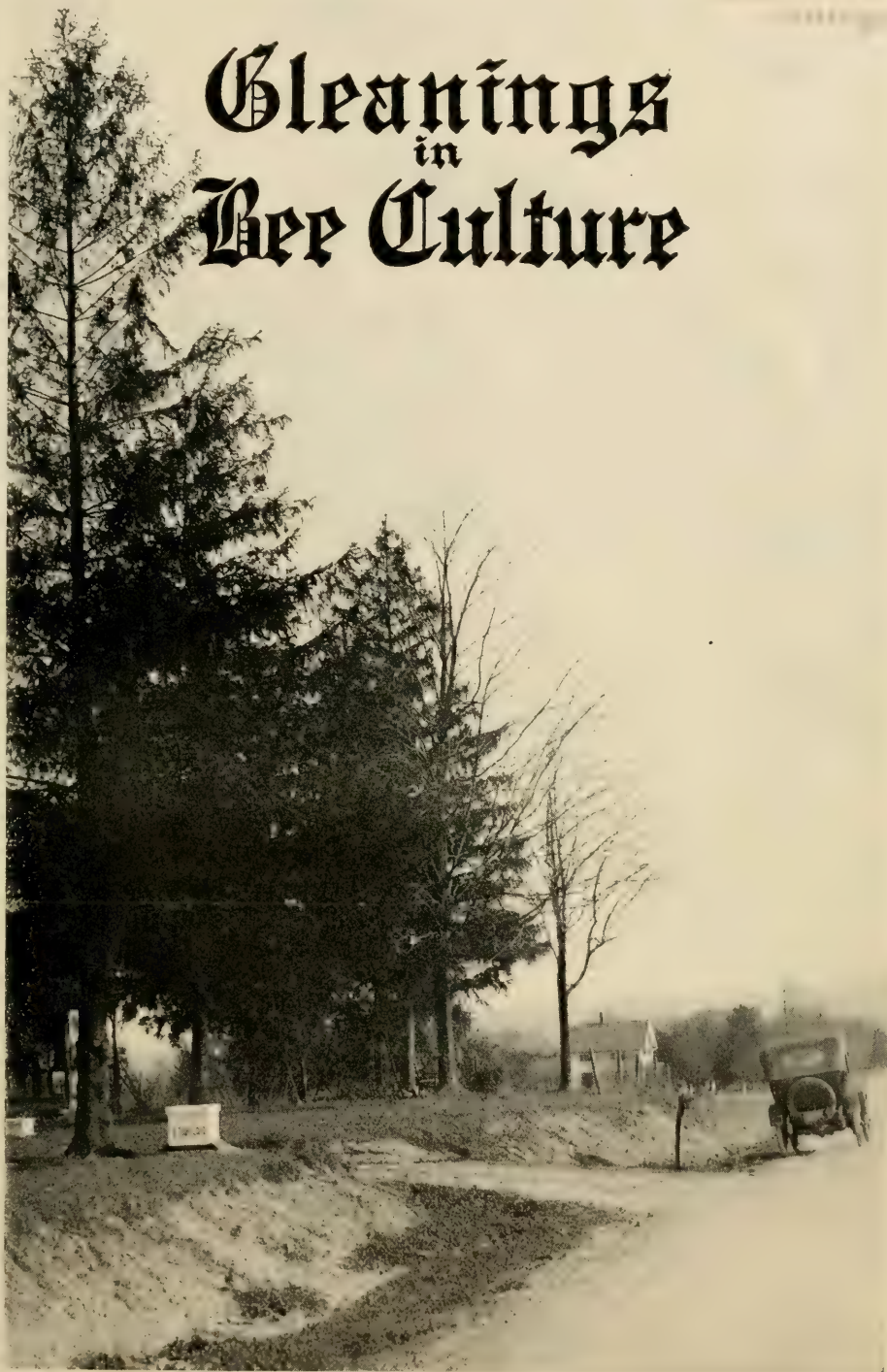
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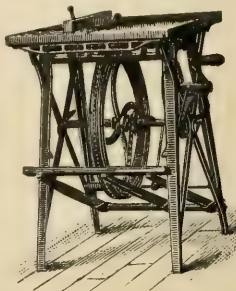
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This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

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Kill All Flies! They Spread Disease

Placed anywhere, **Daisy Fly Killer** attracts and kills all flies. Neat, clean, ornamental, convenient, and cheap.

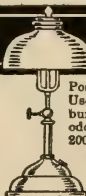


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Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. **AGENTS WANTED EVERYWHERE.**

THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following:

Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uni-

form color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case."

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.
Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES Adopted at Cincinnati, Feb. 1913

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than twelve ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

Watchful Waiting Causes You to Get Left

So Buy your Bee Supplies Now.

Promises to be a Honey year. Ship on day of receipt of order.

Lewis' Beeware—finest in the world.

Send for our 1916 Catalogue.

We do Beeswax rendering. Ship us your old Combs and Cappings. Write for prices.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

Queens! Queens! Queens!

We will make a specialty of shipping Queens, Nuclei, and Full Colonies from Florida during the present month. We are breeding from queens that produced a surplus of 300 pounds per colony in a 24-day honey-flow in Florida, and that are unexcelled for prolificness, gentleness, and honey-gathering.

When you order queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from our famous Honey-gathering Strain for Queens, Nuclei, and Full Colonies promptly, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. Write for special price on orders of 50 or more. We ask you to give us a trial and let us prove to you that our stock is unexcelled by anything on the market.

Island-bred Italian Queens

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00
Tested Breeding Queens,	\$5.00 and \$10.00. each		

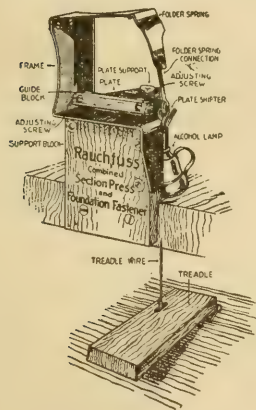
Prices on Nuclei and Full Colonies without Queens

1-frame Nucleus, \$2.00	5-frame Nuclei, \$5.00
2-frame Nuclei, \$3.00	8-frame Colony, \$8.50
3-frame Nuclei, \$4.00	10-frame Colony, \$10.00

Address all Communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER**. Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for $4\frac{1}{4} \times 4\frac{1}{4}$ and also for 4×5 sections.

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Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	1.75
Tested	2.50
Select Tested	3.50

Prompt delivery assured.
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Gleanings in Bee Culture

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H. H. ROOT

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POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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JULY 1, 1916

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NEW YORK.—The old crop of comb honey is now pretty well cleaned up with the exception of some off quality—odds and ends for which there is practically no demand. New crop from the South is now beginning to arrive, and No. 1 white stock is selling around 14 cts., in some instances 15, while off grades sell accordingly—lower as to quality. We have nothing new to report as to the market on extracted. There is a fair demand, at unchanged prices, with liberal supplies. Beeswax is steady at 30 to 31.

New York, June 19. HILDRETH & SEGELKEN.

ST. LOUIS.—The demand for honey in this market has been very light the past two or three weeks, especially comb honey. No new honey has arrived here. We are selling in a jobbing way No. 1 bright amber comb honey at \$2.75 to \$3.00 per case; No. 2 from \$2.50 to \$2.75 per case, under grades less. Southern amber extracted honey, in barrels from 6 to 6½; in 60-lb. cans, from 6½ to 7½; dark, ½ to 1 ct. per lb. less. Beeswax is quoted at 30 for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, June 21.

KANSAS CITY.—The honey market remains about the same. There is very little old honey left on this market, and so far this season we have seen no new honey. We believe that the new honey, when it comes in, will sell at about \$3.50 to \$3.75 per case. Extracted honey is cleaning up very rapidly; and while prices are no higher, there is a considerably firmer feeling to the market. Prices range from 6 cents a pound for dark amber to 7 for lighter honey. There is no white extracted on this market.

C. C. CLEMONS PRODUCE CO.

Kansas City, June 17.

ZANESVILLE.—There is no particular change in the honey situation here, the demand being about normal for the season, and prices practically unaltered. In a small way best white comb brings around \$4.00 a case. Some western sells for \$3.75. Jobbers are allowed usual trade discount. Extracted is in limited demand at prices as heretofore, 9 to 10 cts. for best white; darker grades correspondingly less. For good clean beeswax we pay producers 28 cts. cash, 30 trade, and invite shipments on this basis.

Zanesville, June 17.

E. W. PEIRCE.

DENVER.—We have nothing to offer in comb honey at the present time. We are selling extracted honey in a jobbing way as follows: White, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¼ per lb., and amber, 7 to 8 per lb. We pay 26 cts. per lb. in cash and 28 in trade for clean, average yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASSOCIATION,
Denver, June 19. F. Rauchfuss, Mgr.

ITALIAN THREE-BAND BEES

For the rest of the season I recommend my three-frame nuclei for building colonies. Prices the same as in June 1st issue. Cheap as I can furnish northern bees.

E. A. LEFFINGWELL, ALLEN, MICHIGAN

BANKING BY MAIL AT 4%

Do Not Take Risks

Deposit your money in this bank where you will be sure it is in absolute safety. Our conservative policy, honorable management, large capital and surplus, and strict state supervision assure security for every dollar.

Moreover, you receive four per cent interest, compounded twice a year.

Deposits may be sent by mail in the shape of check, draft, money order or the currency by registered mail.

One dollar opens an account.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A. T. SPITZER, Pres.
E. R. ROOT, Vice-Pres.
E. B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

3 Garden Tools in 1 The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.



Barker Mfg. Co.
Box 117 David City, Nebr.

Quality Quickly

There's the reason why we maintain two western branches and warehouses. The convenience of lower freight and prompter shipments, coupled with the excellence of our bee supplies, have been realized by western honey-producers.

It is unnecessary to talk here about the type of supplies carried in stock at these two distributing points.

The Proof of Quality

Our exhibit at the Panama-California Exposition was awarded a grand prize and a gold medal.

This is California's Decision

The A. I. Root Co., Los Angeles, Cal.

Geo. L. Emerson, Manager, 948 East Second St.

Where the Weed foundation-machines are making perfect non-sag foundation. Send us your wax to be made into foundation. We buy wax too.

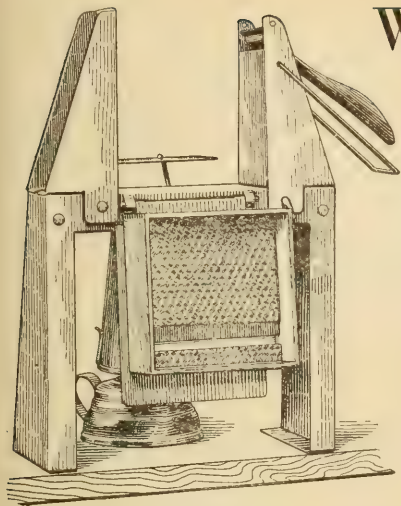
Root Redwood Hives.—A sample hive body with cover and bottom KD, \$1.00. Quantity prices on application. We cut hive parts to order.

New machinery for manufacturing hives and frames has been added. Extractors are now shipped "knocked-down" from the factory at Medina.

The A. I. Root Co., San Francisco, Cal.

245 Mission Street

We have moved. Office and warehouse in the same building.
Write for catalog and send us your list of wants.



Woodman's Section-fixer

A combined section-press and foundation-fastener of pressed-steel construction. It folds the section, and puts in top and bottom starters at one handling, saving a great amount of labor. Hundreds of them in use. The sale this year has increased wonderfully, and they give perfect satisfaction in every case when properly operated. Dadant & Sons say, "The sale on Woodman section-fixers now far exceeds all others."

With top and bottom starters the comb is attached to all four sides, a requirement to grade fancy. Increase the value of your crop this season by this method. The best and most successful producers such as Dr. Miller use top and bottom starters. Their honey would ship across the continent without breaking down, even if only half completed.

Price \$2.50 without lamp. With lamp, \$2.75.
Weight, 5 lbs.; postage extra.
Adjustable to any standard size of section. Send for special circular with large illustrations.

A. G. Woodman Co.
Grand Rapids, Mich.

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

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Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

If you need supplies or bees shipped promptly write us. Our stock is complete, no delays. Chaff and single-walled hives. Bees by the pound, nucleus, or full colonies. Untested queens, \$1.00; tested, \$1.25. Catalog free.

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Apiaries, Glen Cove, L. I.



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We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.
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633 Central Bldg. . . Los Angeles, Cal.

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of Honey and Wax**

Write Us for Prices when in the Market



Established 1885

A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

For Quick Shipments
Write or Telegraph
Superior Honey Co.

Ogden, Utah
Branch at Idaho Falls, Idaho
Beehives, honey cans, and "everything in bee supplies." Manufacturers of "Superior" foundation (Weed process).

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Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Your Honey Crop Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee
By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

NOW IS THE TIME

To order your supplies, and thus have every thing in readiness for the spring.

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

What do you know about that

We are getting an almost innumerable number of orders to go by parcel post --- a great thing for beekeepers on rural delivery. BUT REMEMBER to always include enough in the amount sent to cover the postage required. . . .

For instance, if you are within 150 miles of Syracuse, and need 500 sections, we can mail them for 41c; 250 sections for 21c, and 100 sections for 11c. Foundation in 5-lb. lots, can be mailed for 11c; 2 lbs. for 7c; 1 lb. for 6c. Always figure postage more than foundation weighs. Rates inside of 150 miles once the total weight plus 4.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Nominated by Acclamation Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who "has been at it" for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect? Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor
A. I. Root, Editor Home Department

H. H. Root, Managing Editor
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JULY 1, 1916

NO. 13

EDITORIAL

The Demand for Bees and Queens

THE demand for queens this year has been the greatest ever known. Large numbers of queen-breeders—more so than usual—are swamped with orders. The demand for bees also, especially in combless packages, has been very great; and the bee-supply manufacturers, so far as we know, have had a harvest of orders. The idea of preparedness seems to be in the minds of beekeepers everywhere, because there never was a year when there was a prospect of a larger yield of honey. Notwithstanding all this, there may yet be an entire failure of clover.

Stings that Leave no Sore Spots

THE sage of Marengo is always bright and breezy; and he has a way of differing sharply with an opponent that does not leave a sting nor a sore spot. Witness, for example, his rejoinder to R. F. Holtermann in Straws for this issue.

The editor of GLEANINGS has had a good many "scrapes" with Dr. Miller, both in private and in public. Some of his private letters are as good as a circus. We rather *enjoy* drawing his fire; because (to change the figure) his is the kind of fire that doesn't scorch. We hope, therefore, that Mr. Holtermann will draw some more fire. Go after him, Mr. H.; but look out that you do not get the worst of it, even if he is 86.

Getting Free Advertising in Local Newspapers

DR. A. J. BONNEY, in this issue, has an article which will well bear careful reading. The newspapers are looking for good "dope" to publish. Dr. Bonney has prepared a series of striking paragraphs that tell the truth about bees and honey. If the beekeeper will seek to give his local newspapers paragraphs like these he will bring his business before the public in a way that will not cost him a single penny. This is the year to advertise honey if there ever was such a year. If the clover crop is go-

ing to be large, advertise; if it is going to be short, advertise anyway, and make the price in keeping with other food products. Everything is going to be up because it is war times if there ever were war times. All the great nations of the world are now having big and little wars, and at this writing it looks as if our dear Uncle Samuel would get involved with his neighbor on the south.

The Meanest Colony to Introduce a Laying Queen to

A COLONY that has been queenless for a week or ten days, has built cells, and possibly hatched a virgin, is about the meanest proposition to introduce a queen to that we have. If the virgin is not lost in mating, the fact cannot be known definitely until a frame of brood is put in the hive, and cells started. An expert can tell by the behavior of the bees. If a laying queen is to be introduced to a colony that may or may not have a virgin, she will not stand much show if the virgin is present; and if the virgin is a young one, or inside of a cell, the bees may take things into their own hands, and kill the laying queen. About all one can do is to give such colony a cell, if they do not already have one, and always a frame of brood if it can be spared from some other colony. The beginner should understand there is a large amount of risk in trying to introduce a laying queen to a colony that has been queenless for a week or ten days.

Beekeeper-Berrygrower, Here is Your Chance

THERE are many inexpensive ways of calling attention to honey. A number of very good suggestions are given in this special number on the subject. Here is another plan which we feel sure is practical and well worth trying. Mr. Frank Rauffuss, of Denver, gives the details in the following letter:

We are herewith sending you a little slip, 2½ x 6 inches. The plan for using this is to

get beekeepers who are also berry-growers to insert one of these in the bottom of each box of berries they pack, so the housewife will come across it when she empties the box and can try out the suggestion of using honey in place of sugar for sweetening berries.

**HAVE YOU EVER SWEETENED BERRIES
WITH HONEY?**

IF YOU HAVE NOT, TRY IT TODAY.
IT IS DELICIOUS.

We hope that this will be the means of inducing some people to use a mild-flavored honey for the above said purpose. Furthermore, we expect the beekeepers who are berry-growers to get the other berry-growers to utilize these strips also.

It is surprising how few people use honey on strawberries, for instance. We prefer it to sugar on any kind of berries, however, for it blends so well with the fruit-juices that the flavor is far better than that of berries sweetened with granulated sugar.

Bees Exonerated

A GOOD many beekeepers are bothered every year by berry and grape growers complaining about the bees, and insisting that the bees "bite" the fruit and suck the juices. The trouble is that people who make such complaints do not read bee-journals and do not know that what they are claiming is an impossibility.

Our attention has just been called to a paragraph in the *Indianapolis News*, taken from the *Scientific American*. We hope that this paragraph may receive considerable publicity over the country. We fear, however, that it will not be as widely copied as the some sensational claim were made against our friends the bees. Newspapers, as a rule, are never quite so happy as when they are showing up somebody or something. Our hats are off to the *Indianapolis News* for having the good judgment to copy something really worth while.

An agricultural society of Florence, Italy, has recently carried out a thoro investigation of the alleged injury of fruit by bees, and has completely exonerated the latter. Bees are unable to perforate the skin of fruit, and it is only incidentally that they suck the juices of fruits injured by other natural causes. The damage sometimes attributed to these insects is due to poultry, wild birds, wind and hail, and even more frequently to hornets, wasps, vine-moths, and other insects. Instead of being harmful to orchards and vineyards, bees perform the useful service of effecting the cross-pollination of flowers, and hence the setting of fruit, as well as the desiccation of damaged fruits (especially grapes) by sucking the

juice and pulp and thus preventing fermentation and rot extending to sound individuals. The orchards and vineyards frequented by bees give the most constant crops.—*Scientific American*.

We suggest that beekeepers get their local papers to publish this clipping, giving credit not to *GLEANINGS IN BEE CULTURE*, but to the *Scientific American*, in order that the reader may not get the mistaken idea that he is reading a biased statement. There is no time when this clipping could be used so effectively as right now.

Clover Prospects Weighed in the Balance; On a Tiptop of Expectancy

ACCORDING to all reports from all over the country, clover—white, alsike, red, and sweet—was never more abundant than this year. The fields are white with it. We have gone over portions of northern Ohio in an automobile—localities that never showed white clover before, and found they are showing quite a large profusion of it. Some fields look as if they were covered with snow.

But the all-absorbing question with the beekeeper is, "Will this clover yield honey? and how much?"

Bees in our part of the country are barely making a living and rearing brood. Colonies have to be watched very carefully to see that they do not starve. The conditions are much the same as last year—rain, rain, rain, and chilly weather, interspersed now and then with sunshine and a little warm weather. But no sooner does the nectar begin to come in than it rains again.

Last year there was an enormous crop of clover honey in spite of these rains; but it came a month or six weeks late. History may repeat itself this year. If settled warm weather should come on, there would probably be a clover flow the like of which was never seen before.

But why does not clover yield on occasional warm days? One of our neighbors, Adam Leister, a local beekeeper, and a splendid farmer, offers this explanation: Rains and cool weather have made a rank growth of the clover plants, including the blossoms; in fact, all kinds of grasses and clovers are growing so rank that lawns have to be mowed almost every other day. Well, this rank growth has absorbed all the strength of the clovers so there is nothing left to develop nectar in the blossoms. It used to be an axiom, and it is a pretty good one today, that, when farmers begin to complain of drouth, honey begins to yield. In other words, it is impossible to grow a

rank growth of clovers and get nectar at the same time. As soon as the rain stops and the weather turns hot, the growth of the clover plant stops and nectar begins to yield.

The United States weather maps, one of which reaches us every day, show that this rainy weather is practically universal throughout the clover regions of the United States. It spreads from the Dakotas to Maine, from Maine to the southern states, and from there to the Rockies. Texas has had an unusual amount of wet weather for that state, and it has certainly been a honey year for the Lone Star State.

If this cool rainy weather should continue another month there may not be much if any clover honey; but the probabilities are that it will change soon; and when it does, if not too late, there will doubtless be a big crop of clover honey throughout the United States. We have the plants this year—thousands of acres of them—and we have the moisture in the soil and in the air; and now the thing we earnestly hope for is a good old-fashioned drouth, for no drouth now could stop the flow of clover nectar.

Our Rocky Mountain beekeepers probably will not feel so very badly if the cold weather of the East continues; for their crop, on account of snow in the mountains, is reasonably assured. California will have more honey than early indications seemed to show.

The price of honey this coming season will depend somewhat on how much clover honey is secured in the eastern states. The whole beekeeping world, on account of this, stands on tiptoe awaiting the events of the next few days.

Later.—Sunshine and a clear sky have come. Will it continue? We are "tiptoed" clear up high.

Beekeepers are requested to send in postal-card reports.

Some Pointers on Advertising Honey; Shall a Producer Retail His Own Honey?

It is apparently easier for the average individual to produce an article than to let the prospective purchaser know he has something he wants to buy at a profit to the producer.

One reason for advertising any merchandise is to help the prospective purchaser realize that we have the particular article he wants. The various methods outlined in this issue in the articles on honey advertising which have been effective in increasing sales are well worth careful study. How-

ever, the plan which is best in one locality may not be best for another.

The local beekeeper has the advantage over outside advertisers, as he knows the peculiarities of the people of his own locality, and can also appeal to local pride. The most important factor is to have an article *worth* advertising, and at the same time offer it for sale in a form to meet local needs best.

We have long been of the opinion that beekeepers who specialized on the larger packages, five-pound pails and up, were making the most money, and they are certainly creating a larger demand. The grocer will handle the larger packages when the beekeeper is back of the goods, as suggested by Mr. Frank Kittinger, this issue, page 533. It costs practically as much to sell the 10-cent size as the \$1.00 package; but mark this: *To enjoy the co-operation of your grocer you must protect him by not underselling.*

All advertising should be of a character to inspire confidence of consumer, also the dealer, not only in the goods advertised, but in the man back of the goods. Your advertising is capitalizing your character.

Exhibits as described by Mr. Burton N. Gates and several others are one of the best means of publicity and one of the cheapest. The opportunity for personal contact can not be overestimated, and we consider it one of the cheapest means of effective advertising. Articles and statements tending to create interest in bees in general, interesting facts suggesting the honey industry, and the publishing of honey cooking recipes gradually build up public sentiment in favor of honey, creating the desire that results in the purchase.

If more beekeepers displayed attractive signs it would not only help their business but the industry in general. Billboard advertising in cities is expensive; but you have the opportunity at no expense, aside from the sign; and if you live on a main road invest in the best sign you can afford. Utilizing your location in this way will make you slick up a little, improving general appearances; and Ruth C. Gifford's suggestions, page 537, regarding appearances can not be overlooked, and will apply to your plant as well as the goods you sell.

The idea suggested by John R. Pomeroy, page 542, and others, would be a long step in the right direction, and in our opinion beekeepers would be wise in adopting a uniform sticker, EAT HONEY.

The beekeeper has another problem to solve: In these days of high cost of labor, the increased cost of doing business must

be considered. GLEANINGS has always advocated development of the home market; but not every one is in a position to do this. Some would be losing money to attempt to sell locally. One expressed the situation in this way: I prefer to keep more bees, produce more honey, sell to the large buyer, using the time required to sell my crop locally in getting ready for next season.

These are personal problems to be decided before the question of local advertising is considered. If your decision places you in this class, eliminating local advertising, we believe the real beekeeper's fraternity spirit will keep you alive to every opportunity to scatter the doctrine, EAT HONEY, that, if persisted in, will gradually erase honey from the luxury column and place it where it belongs—among the staples.

Keep everlastingly at it.

Our Advertising Number

WHEN we were first asked to get out a special number on the subject of advertising honey we wondered whether it would be possible to secure enough good live material. We are rather proud of the array of material that we are enabled to present in this number.

In *The Independent* for November 8, 1915, appeared an editorial, "The Advertiser as a Public Benefactor." Those who have access to this particular copy would do well to look it up and read the editorial from beginning to end. It is worth while. We wish that we could take the space to quote it all. We quote herewith only the first and the last two paragraphs.

A great deal is said about the value of advertising to the salesman, but very little about its value to the buyer. Yet it is obvious upon reflection that such an expensive piece of machinery as the modern system of advertising could not be maintained unless its benefits were mutual. It takes two to make a bargain, and this new method of bargaining, this new channel of communication between producer and consumer, must be giving satisfaction to both, altho the said party of the second part rarely realizes how greatly to his advantage it is. The common saying, "It pays to advertise," has a wider meaning than it is generally credited with. Advertising, on the whole, pays all those concerned. Advertising pays the advertiser in case the money is wisely expended. Advertising pays the periodical, we are happy to say. Advertising pays the purchaser, for it puts him in the proud position of being sought instead of the seeker.

The use of prepared cereal foods is a veritable revolution in the dietary of the nation. Say five million dollars has been

spent in accomplishing it, could the result have been attained as quickly or more cheaply by any other means? How long without advertising would it have taken to develop and make known to everybody the automobile and the hand camera, the player-piano and the phonograph, the office utilities, the toilet accessories, and all the thousand "Yankee notions" that make our life so pleasant and complete?

No: advertising is not "one of the economic wastes of competition," as it is sometimes called. It is on the whole well worth what it costs to the community, and it is hard to see how the world can ever get along without it. Even if competition be some time eliminated, advertising of some kind will have to be kept up unless the race is to stagnate. Progress consists in the creation of new wants; happiness, in the satisfaction of them. So both progress and happiness are facilitated by the efforts of the advertiser. He is not a producer; no, and neither is lubricating oil a fuel for the engine, but it is quite as indispensable as coal. The advertiser should not be regarded as a parasite upon industry, as an extravagance to be some time eliminated in the interests of economy of distribution. He is more likely to be regarded in the future as a person of greater importance than at present, for the training of the public in new habits and the introduction of new utilities will become more necessary as science and invention become more active. When his real value to the community as an accelerator of civilization becomes recognized, historians will rank the discovery of advertising as an epoch-making event and not less important than the discovery of America.

The reason that so many people do not use honey is that they never think of it. They must be made to think of it before they will take the trouble to buy it. Conservative but continuous advertising in local papers is one of the best forms of keeping honey before the people. There are many other inexpensive ways of securing publicity for honey. As several of the writers in this number point out, a neat sign in front of an apiary on a well-traveled road calling attention to the fact that honey may be purchased within gives surprising results. Between Medina and Cleveland, on the main road, lives a beekeeper who hit upon the ingenious plan of locating a hive in a conspicuous position by the roadside. The hive was enameled white, and on each side was painted the one word "Honey" in a brilliant cherry red. The result of this silent salesman was gratifying. The honey on hand was sold in short order, and at a good price. The picture on our cover for this issue shows the hive on the bank where it could be seen for nearly half a mile each way.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



G. M. DOOLITTLE is just right in his advocacy of drawn comb in sections, when rightly used, p. 320. It might be added that in years of failure I've had such bait combs filled thruout the apiary, while not a drop was stored in sections filled with foundation, in the same super.

WHEN putting foundation in brood-frames the first time, the wedge and saw-kerfs are fine; but if ever you want to put in foundation the second time the grooves are a nuisance. Perhaps the best thing then is to fill them with wax or paraffin. [It is not often that comb foundation is put in such frames the second time.—Ed.]

SPEAKING of white clover, John H. Lovell says, p. 477, "Honeybees also often gather loads of greenish pollen, altho this is not abundant." If that came from almost any other authority, I should say, "You've been careless in observing, my friend." As it is, I wonder if Illinois is not different from New England. Here I don't think Prof. Lovell would call it greenish, but brown; and it is stored in greater abundance than any other pollen, altho the pellets brought in are never so very large. [It is doubtful whether the color of pollen from white clover in Illinois is different from that of Maine. The matter in question has not been printed in the book, and we are investigating.—Ed.]

R. F. HOLTERMANN, I'm not on speaking terms with any man that clips both wings without any better reason than you give, p. 491. You say there is a better way to mark a queen's age—on a top-bar. Isn't it much better still to have it in a book? But what has that to do with the question in hand? I never kept track of a queen's age by clipping, and I think very few do. The only reason I find for your clipping both wings is that when only one side is clipped the queen appears "to look very awkward—like a cripple." If a shark should bite off one of my legs, I don't believe I'd say, "Please bite off the other leg, Mr. Shark, so I won't look so much like a cripple." If looks is the only thing, why not clip only the larger wing on one side? Then at a hasty glance you can't tell her from an unclipped queen.

WHATEVER may be best for the beekeeper on a large scale, for the man with only a few colonies the best thing is to send away his combs to be melted up by those who

make a business of melting combs—so much simpler and easier, and in most cases cheaper. [Sending combs across the country to be melted up by one who makes a business of doing such work is fraught with some danger. We prefer that our customers do not send us such combs on account of possible germs of foul brood. If there is anything that scares us it is to see our bees working on a mess of old combs whose history is unknown.]

It is, nevertheless, true that the average beekeeper will not get as much wax out of his old combs as some one who is prepared to do the work. But if he will figure in that he, not "Jones, pays the freight" or express, he may not be making very much after all.—Ed.]

H. H. ROOT, after reading last Straw, p. 427, with your foot-note appended, I said: "If all that I don't know about queen-rearing is put along with what Huber Root and Mell Pritchard do know about it, it would make quite a book." For one thing, we don't know, when bees are rearing a queen, how long it takes to feed a larva. At least I don't from my own observations, and I'm a little suspicious that you and your fellow-conspirator are taking the testimony of others rather than your own observations. You say 6 days, and 15 to 17 days from the egg to the perfect queen. The orthodox time for full development, 55 years ago, was 17 to 18 days. See *American Bee Journal*, 1861, p. 199. Later it came down to 16 days, and later still to 15. As 6 days was, I think, the time given for feeding originally, I think you will find that needs cutting down too. In Cowan's Guide Book it is cut down to 5 days. In A B C and X Y Z it is given as 6 days (page 82, 1913 edition); but in a part written later, p. 166, we are told the larva is sealed "after about 5 days." Rather than to have any hard feelings between us I'm willing to arbitrate, with the bees as judges, Mell Pritchard to report their decision. Till then I stand by the statement that it is sometimes less than 5 days from the time the larva leaves the egg till it is sealed, but never more. Just by way of appendix, let me say that I don't believe any good queen ever took 17 days for development, altho under sufficiently poor conditions 18 days or more may be needed. [Mr. Pritchard is going to make some careful tests this season, and he will keep a record of the average elapsed time in some thousands of queens. More anon.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



In connection with the article, "Nix on the Solar," page 445, June 1, I wonder what a straw vote would show.

* * *

I wonder how long drones will be tolerated in a super. Some frames of brood that we raised contained considerable drone brood (I do hope Mr. Scholl won't read this), and the big burly fellows had hatched out, and were in a crowd just over the excluder when we next opened the hive. Suppose we hadn't opened it—would the workers have allowed them to remain up there until the edict was issued against drones in general? And would they live that long?

* * *

Rain and cool weather have kept the bees of this section in their hives for days at a time, with a truly wonderful clover bloom all around just waiting for its nectar to be gathered in. (But, no; that's the pity; it really doesn't wait at all. As soon as it is thru blooming, it stops, whether the bees have taken the nectar out or not.) One prominent beekeeper recently wrote, "This cold weather and rain has spoiled the best honey-flow I ever had." But even at that, his crop will run into tons; so, in spite of our own sympathy, increased by our own little disappointment at seeing our modest hopes fade, we could only smile when some one said, "Well, I wouldn't mind having a spoiled crop like that every year." You see, we're going to have a good crop in spite of the weather; but if we had had clear days and sunshine, what a story we might have had to tell!

* * *

Talk about advertising, I have just been interrupted by a ring of the front door-bell, and a youth who detained me only long enough to say, "Good for one cake of — soap," while he handed me a printed sheet with a coupon attached bearing the capitalized legend, "FREE SOAP COUPON," also instructions and descriptive detail. Housekeepers in this city have been fairly "pestered" one time and another by various ambitious firms who have chosen this house-to-house method of advertising. Often some inducement is offered—a measuring-cup, I recall, by the cottolene people—to persuade us to put in an order (thru our own grocers) before some specified date, or a coupon is presented for part payment. For a while two or three baking-powders kept my door-bell ringing almost constantly. The soap and scouring-powder people are

working Nashville now on this coupon basis. You see it's the housekeepers that buy the baking-powders and the cottolene and soap. And it's the housekeepers who buy the honey too, I'm thinking.

* * *

FOR BEGINNERS.

If you have not been allowing swarming, and yet want some increase, you may have started nuclei with two or three frames of brood and some honey from big, strong, crowded colonies that needed room. But do be sure to watch over them. They will quite surely need to be fed after the honey-flow, if not before, to develop into sufficient strength to be worth anything, even wintering. I have seen nuclei started in July and August, and left to depend on their own efforts till fall, when they were given enough syrup to go over winter. But tho they pulled thru till spring all right, and started building up, they failed to get strong enough to take advantage of clover when it came. As soon as the flow was on, hive conditions developed rather similar to those described by Mr. Chadwick on page 388, May 15. The bees plunged right into nectar-gathering; but, not being strong enough for super work, they filled up the brood-chamber and soon the queens were honey-bound. It does not pay to have these weak colonies about the yard; so be sure, when you start increase, to give them such good care that they will have a chance to amount to something.

* * *

In Clover Time.

Across the hills of spring we drove
And down the lanes between,
Before the breath of summertime
Had dusted up the green.
And, oh the sudden, dizzy sense
Of worlds blown all abloom,
With every breeze coquettishly
Flirting some perfume!

The delicate wild roses blew
Faint sweets from every spray
Where old rail fences ran zigzag
In their bewildered way.
And, oh the honeysuckle sent
Afloat from first to last,
So winy and intoxicant
It swayed us as we passed!

But best of all, aye, best of all,
Was clover by the road—
And in the field—and up the hills—
For everywhere it showed;
And everywhere its breath was sweet,
And everywhere a bee
Was swaying, raptured, at its tip
And humming merrily!

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Mr. Crane says, page 328, May 1, in speaking of out-apiaries for comb honey: "Much of one's success will depend on doing everything when it should be done." Is not that the case in managing for any kind of honey, Bro. Crane?

Mr. L. E. Webb, of Morgantown, N. C., says his bees gather sourwood honey from a mountain location that is two and a half miles distant at the nearest point, and as far as five miles distant. Mr. Webb must have obtained his stock from some of those long-winded stout-winged fellows west of the Rockies.

Allen Latham says, page 362, May 1, that one year he produced a honey crop which netted him over \$60 per day for time actually on the job. This leads me to reflect that I have known beekeepers who have doubled that amount per day for time actually put in, but which does not say by any means that several additional days could not have been put in at a like remuneration, by doing, as Bro. Crane says, "the right thing at the right time."

I am in receipt of a copy of the report of the state bee inspector of Iowa, for which I am indebted to Inspector Frank C. Pellett. What a contrast indeed to the way things are carried on in this state! Mr. Pellett's report, consisting of seventy pages, neatly bound in cloth, is brimful of things that must interest Iowa beekeepers, with much information valuable to any of us. This man Pellett seems to be one who does things, and would be an asset at the head of such a department in California. There is no question but that we are falling behind in the inspection line—far behind many other states. Our inspection is divided into county units that are more or less subject to political influence, and our state association is as full of wire-pulling as an egg is of meat. And, sad to state, we seem to be going to stay where we are, which I believe would be just as well as to have some men at the head of the state department who have been slated for the place. If we had a man like Mr. Pellett, what a boon to our industry it would be!

COLD-WATER PAINT FOR HIVES.

The editor, on page 343, May 1, has virtually recommended a paint which, if I am

correct, is called "powdr" or cold-water paint, it being mixed with water instead of oil, and is much cheaper to apply the first coat. But is it cheaper in the long run? I have had it under my personal observation this season with the purpose in view of deciding its value as a hive paint. I cannot say, however, that I have been altogether pleased with the results of its use. In the first place, it is a wood protector and not a preserver. On any surface where its application can protect all of the exposed parts of wood it will work very well, but in no other places. The outside coating is simply all there is to it. After it is applied the water evaporates and leaves a cement-like crust on the wood. But, unlike oil paints, where the surface is not entirely free from moisture it has no penetrating or preserving power, and leaves the wood open to the elements of the weather to such an extent that season-cracking is not stopped, while the same wood with oil paints applied, and the oil penetrating into the wood, would preserve and prevent the cracking. When a beekeeper goes down into his pocket to pay for lid material which calls for a board 17 inches wide, and of clear redwood, he is naturally a little "peevd" when he finds that his paint experiments have caused some very wide rents in those beautiful one-piece lids. Then do you wonder that a fellow-beekeeper hastens to admonish all to go a bit slow on the proposition? Try it out a little for yourself and see if I am right. Meanwhile let me recommend to you good white lead and pure raw linseed oil as being the very best white paint you can find. For dark colors there is nothing better than red paint commonly used for roofs, called "prince metallic." Hives should not be painted dark colors in this region, as the sun's rays are too strong, causing more intense heat. [Cold-water paint is certainly better than no paint at all. A large percentage of beekeepers don't paint their hives. The hot sun checks the wood because the dark color of the weather-stained wood draws the heat, and the combs inside are sometimes melted down. "Powdrpaint," if white, would overcome the difficulty. Of course, no water paint can be equal to an oil paint; but look at the difference in cost, and think how swarming is increased because the hives are too hot! There are many places where there is no shade. Oil paint is expensive. Why not use water paint or cement paint? —Ed.]

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



CALLED BY ANOTHER NAME.

The ability of locally applied names of plants and shrubs and trees to mislead the best intentions is almost startling. Several years ago a beeman from northern Florida or southern Georgia said to me, "We count on the holly for our surest yield of early honey." When I tried to identify it, whether our white holly of this section, whether it was an allied species, or what, I could glean nothing from his meager description and vague terms. Later on, another beeman from further north in Georgia said about the same thing, substantially, but he used the word "gallberry." Three or four summers ago I was impressed with the value of a modest-looking shrub that grew not over two or three feet high along the water-courses, and near the hammocks of even the pine lands near here—the value, that is, as a bridge between the cessation of the citrus honey and the opening of the palmetto honey-flow. On identification the latter shrub proved to be the *inkberry* (*Ilex glabra*), and as such I always spoke of it; it is thus called in Small (Flora of the Southeastern U. S.) and in Baerecke (Ferns and Flowering Plants, Atlantic Section, Middle Florida); so also in Chapman (Flora of the S. E. United States). All called the plant I knew "the *inkberry*." Not one of them mentioned "gallberry," nor *once* quoted it as even a *local* name for *any* plant or shrub. I was surprised and not a little puzzled—for all beemen from the Carolinas to the Keys seemed to know of gallberry and its value for the bees, tho none knew *inkberry*. At last the mystery has been solved. The two are identical—*inkberry* and *gallberry*! Did you ever? And not one of the named authorities mentions *gallberry*, and not a local beeman nor any one I ever conversed with knew of or used the name *inkberry*! Such a complete divergence of terms I have never before known. But at last the fox is run to earth, and has been captured. Henceforth I shall speak to our friend the *inkberry* and call him familiarly by the old term, the common term, "gallberry." It reminds me of the difficulty I had in identifying the four tupelos of the northwest section, the so-called "white tupelo," the "black tupelo," the "black gum," and the "water gum," tho the local beemen call them generally the black and the white tupelos.

THE PROSPECTS FROM THE MANGROVE.

At this time the buds of the mangrove (black mangrove, *Avicennia nitida*) are

opening, and look fair for a good crop; but one never can do more than make a guess about the mangrove. It never lacks for water, drouth never affects it, for it grows on the islands and shores of land that is always moist from the salt water of the tides. It never fails to bloom profusely. But that is all we can be sure of. Vigorous growth and profusion of bloom avail nothing unless the weather conditions are perfect; nor does any one know what these conditions are that make perfection of weather conditions for the mangrove. With the palmetto, beemen can observe that excessive drouth during blooming time, or excessive rain, will lessen the flow of nectar from that source. With the mangrove it is all conjecture. We know it yielded monstrously (no other word will suit it) before the big freeze of 1894; since that time it has been steadily coming into larger and larger proportions and size, gaining some of its old-time appearance, tho none of the shrubs can yet be called really trees in the vicinity of Hawks Park and New Smyrna, the old Mecca of beemen when mangrove gave such unheard-of yields. It has not yet, however, come back into its old-time secretion of nectar. Whether it will ever do so, remains for time to determine. Beemen hope that it may—naturally so. The yield seems better on the mainland, but the quality seems a little better on the Keys off the southeast coast. This honey is light in color, tho not quite so light as pure orange. It is not quite so good in flavor as palmetto or orange. It candies easily and hard, almost as firm as white-clover honey. The fact that it grows only across bodies of water entails a considerable loss of the flying bees across the salt water to the mangrove-fields. I have seen, on windy days, hundreds of bees swimming only to drown on the water between the islands and the mainland—bees that had been unable to combat the high winds with heavy loads of honey. When mangrove yields well a bee can gather a load from a single blossom, and then leave some. This is no fairy tale, but actual fact. It is probably most often the old bees that perish thus—old bees whose wings are frayed and wasted. The cabbage palmetto (*Sabal palmetto*) blooms right along with the mangrove in point of time; but on the higher land—the islands that are above tide-water, and on the hammock lands that are not submerged by salt water. It is a picturesque sight to stand on one of the shell mounds that characterize the East Coast and look for miles over a green sea of mangrove

on the seaside, and sight along miles of towering cabbage palmettoes on the mainland side. It does seem that no number of bees could ever cull all the blossoms that must open along the Indian River when mangrove and cabbage palmetto are both in bloom. The honey is thus always mixed, never pure or separate. But each is a light honey, which is fortunate, or else the light would inevitably be spoiled by the dark. The blend is a good honey.

THE "HONEY" METHOD OF INTRODUCING.

Whenever I hear a bee man telling a new or retelling an old method of introducing queens I always "sit up and take notice." I do more. I begin to ask him questions. And the first question is, "Will it introduce a virgin queen?" If he says yes, then you may be sure I always try the method at the first opportunity. When the Miller method of using smoke was being agitated, of course that method had a good trial in my apiaries. And while I did succeed in introducing virgins to nuclei occasionally (tho seldom to full colonies) the one troublesome but essential feature of that method, viz., the necessity of having not more than a one-story hive, made it almost impossible for me to use it when I wished to do most of my introducing, for that is right in the midst of the orange-honey flow, when hives are often three stories high. To take off the two supers, reduce to one story, and then smoke the bees almost to suffocation, and do it all with the supers piled up alongside, waiting till the queen was in made it of little practical use to me, tho it is a useful thing to know, and have on hand for occasion. Not long ago my good friend Mr. F. M. Baldwin, now of Sanford, said to me, "Did you ever try the honey method?" When I said no, he said further that he had obtained almost uniform success with it, and that Mr. Clute, also of Sanford, used it almost altogether, with uniform success. Well, after such testimony I tried the method. Tho I had heard of it before, I had been rather afraid to daub the queen all over and pour her into a hive, especially if she was a valuable one; but I took the first opportunity, and tried it on a rather inferior tho laying queen. All worked well. Inside of a day she was laying. I then tried it on a more valuable queen with the same result, laying inside of a day. Then I went it one better, and put it to the ultimate test. I found a frame of fine virgins, just hatched, and put one into each of three hives, dequeening them at the same operation. All three were accepted and mated all right. Then I tried it on a colony that had been

queenless for a week and had capped cells. I did not even remove the cells. The next day but one I looked into the hive, and was surprised to note the cells still there. Of course I gave the virgin up for lost. I was just placing the hive back in position when I noted the virgin running briskly over one edge of the comb, dodging under the bottom-bars. She looked as vigorous as any queen need to. While I could not account for the presence still of the capped cells, yet the introduction of the virgin was an assured fact. I next tried it on colonies that were dequeened at the operation, but introducing virgins two or three days old that had been caged in queenless colonies ever since being hatched. I have yet to report the first failure. The method seems sure. It is easy; and, tho a little fussy, if you call pouring a bit of honey over the combs fussy, still it is *far* less bother, and takes less time than any other method that I have ever tried—even the smoke method; and instead of being painful to the inmates of the hive it is pleasant and soothing, for there is about half a teacupful of honey poured in at the operation, the queen being soused well into the cup beforehand, and all poured together into the top of the hives. Watch till you see her rolling over and over down among the frames in a sticky mass of sweetness, and your heart will fail you at first; but when you see that same queen laying the next day, and looking as bright and clean as if she had had a fresh-water bath, your fears will never recur. I shall continue to give this method severe testing; and if it works as well as it appears so far to do I shall be mightily obliged to my good friend who called my attention anew to an old device. I should like to have others try it and report.

ANSWERING INQUIRIES.

For several weeks I have been deluged with letters of inquiry regarding honey conditions in Florida, and possibilities for bee-keeping here. Most of the letters contained no stamps for reply. I will take this opportunity to state that I cannot promise to answer *all* letters, even when they do contain stamps, nor many of them, at times of special work with the bees; but those that seem to contain questions that are apt, pertinent to statewide conditions, or right to the point on some special location, I will try to answer in this department in so far, at least, as I can. In this way a wider circle will be reached, the replies will be put on record, and when, in a few weeks or months, the same inquiries are made again (as they surely will be), I can simply refer them to GLEANINGS, such and such a date.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



While we have no crop of honey yet, and are not sure of having any, in view of the fact that all food products are rapidly advancing in price, naturally we might expect to see honey selling higher than usual as well. I have just received a circular with price list, from one of the largest honey-pail manufacturers, and the price on tinware has made an amazing jump. No doubt the consumer, as usual in about all such cases, will have to bear a share of the increased cost of production, as the beekeeper, in addition to having to pay so much more for supplies, will also have to pay a higher price for all the necessities of life that he has to buy.

* * *

We have already mentioned the fact that Ontario is pretty well deluged—at least this is the case in the two counties in which we have bees. Clover is up to the knees already, with bloom scarcely showing. Farmers say the alsike will be too rank to leave for seed; so if they cut it for hay the heavy rains will prove to be a drawback to the beekeeper. White clover is correspondingly of vigorous growth; and while here in York Co. we usually depend little on this source of nectar, this year it may prove to be quite a factor, as it is unusually plentiful. If weather gets fine soon, thousands of acres of buckwheat will go in, as a great acreage is lying idle at date of writing. Buckwheat is a minor crop with us as a rule; but with prices of sugar looming high, naturally a big acreage of buckwheat looks good for a chance for cheap winter stores.

* * *

At this date, June 10th, some clover is coming into bloom, but not enough to make a showing in the hives, even if the weather were fine. It has rained almost continuously for about two weeks; in fact, with the exception of one week of fine weather, that has been pretty much the story all spring. That one fine week was the salvation of our bees, as they were about starving previous to that time. Honey came in with a rush from dandelion and fruit-bloom during the seven fine days, and enough was stored to carry the bees safely to clover bloom. While bees are not as uniformly strong as in some other years, wherever young queens are in evidence, and stores were in plenty, it is surprising how colonies have built up in spite of almost continuously wet weather.

Yes, we are expecting some honey—that is, if Jupiter Pluvius steps aside for a while and allows the sun to perform the work usually looked for in June and July.

* * *

In Notes for June 1 regarding cost of sugar I mentioned the price as \$9.00 per 100 pounds. That price, by the way, is about the retail figure prevailing at this date, \$8.26 being the actual figure wholesale now. Indications are that it will go higher; and I have just been reading an article in which the fruit-growers are afraid that the high price of sugar will seriously interfere with the marketing of their product. While, in common with others, beekeepers will regret to see the great masses of the people compelled to pay a high price for an article of such universal use as sugar, yet they need have no fear that high sugar will in any way hamper the sale of honey, as the contrary is apt to be the case.

* * *

The *Beekeeper* for June says that a great number of pound packages have been lost during the latter week of May, or thereabout. From private information I learn that the loss has been very heavy. Express companies have been blamed in most cases; but I am sure that the customers are often responsible for loss. Shippers should be sure that bees will be promptly cleared at customs or loss is bound to follow. Personally we have received two experimental shipments from the South, and both lots arrived in good order. Neither consignment was held up for an hour, as we had arrangements made for clearance. While both lots arrived in good condition so far as the bees were concerned, there was a vast difference in other ways. The first lot had queens inside with the bees, or, rather, the queen was in a cage inside of the package, but with the cage so provisioned that queens were about liberated when the bees arrived. Every queen in this case was all right. The latter shipment had queens in cages attached to the outside of packages; and of all the queens I have ever introduced, this lot certainly proved my Waterloo. Nearly half of the queens were lost; and from the fact that three that were finally accepted did not lay for about ten days, I was led to believe that a lot of virgins were sent during the rush of the very busy season. More later on this subject, as it is one in which many are interested at present.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



Rain has fallen in the Arkansas Valley of Colorado; and while the weather still is cool for the season thruout the Rocky Mountain region, bees are building up fairly well, and we are hoping for a fair crop. Idaho has some hard freezes, and bees did not winter very well; but no doubt the usual amount of honey will be ready for shipment as the season ends. Apiaries in Boulder County vary very much in strength. Some are building up strong, while others are short of bees, and the queens have not got down to regular systematic work. The solid frames of brood, so necessary to rapid building, are lacking in many colonies.

• • •

A SERIOUS LOSS FROM FIRE.

Mr. D. C. Polhemus, Colorado's most extensive beekeeper, suffered a severe loss recently in the burning of his warehouse. The total loss is about twelve thousand dollars with but \$3100 insurance. The building was full of supplies, extracting combs, and honey. Mr. Polhemus injured his foot at the time, but wrote me that it would soon be well. The heaviest loss and the hardest to recoup is the extracting combs. As the entire equipment for two thousand colonies was stored in the building, beekeepers can realize and sympathize with Mr. Polhemus and son Edgar in their great loss.

* * *

PICNIC OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION AT FORT COLLINS.

On June 10 the annual picnic of the Colorado Honey-producers' Association was held in Fort Collins, at Lindenmeier Lake Park. Mr. and Mrs. Wm. Lindenmeier, Jr., were royal host and hostess to the 125 picnickers. Coffee and lemonade were furnished by the Fort Collins beekeepers, and the lunches were spread on the tables provided under the trees on the lake front.

The program began at about ten o'clock, with a discussion of the best methods of improving our stock of bees. The valuable point is to rear your own queens from the best you can select in your own apiary. Some advocated the purchase of breeders from the best queen-rearers.

Frank G. Rauchfuss demonstrated the starting of queen-cells artificially by the Doolittle method. His father, Herman

Rauchfuss, elucidated further along the same line. The speed necessary to do good work was well brought out. The strength of a colony to build the cells was an important feature that was not omitted.

Prof. C. P. Gillette, State Entomologist, gave a talk on "The Bee Inspection Law of Colorado," and some pointers on need of greater care in handling diseased apiaries. Beekeepers have not been careful enough in handling the disease, nor following the law closely enough in regard to moving bees.

It began raining before Prof. Gillette finished, and the crowd adjourned to the dancing pavilion, where the morning program was completed. The afternoon program was taken up largely with discussion of uses of honey in the home. Miss Miriam Haynes, of the Department of Domestic Science Extension work, of the Agricultural College, was the principal speaker, and she spoke of the very practical ways in which honey may be used in place of sugar, when sugar is so much higher in price than is pure honey. The use of honey in hospitals and sick rooms, she said, is rapidly being extended, as honey has been found to be so nearly a predigested food.

Mr. C. H. Wolfe, of Greeley, emphasized the need for beekeepers using their local papers in advertising honey, and told of his success in selling his own crop in this way. Mr. Wolfe is a live wire, and he puts enthusiasm in whatever he undertakes.

A feature mentioned by Mr. Rauchfuss was the use of little labels printed and placed in berry-crates. The wording suggested on the slips distributed was, "Have you ever sweetened berries with honey? If you have not, try it today. It is delicious." It is proposed that these slips be furnished by the thousand to the fruit-grower beekeeper at a nominal charge. [See editorial. —Ed.]

At the conclusion of the program most of the picnickers took an auto ride thru the Agricultural grounds. There were about twenty-five auto loads of beemen with their wives and children, who left for their respective homes at about four o'clock.

Dr. H. T. French, Director of Extension; Prof. C. P. Gillette, Director of the Experiment Station; Dr. George H. Glover, head of the Veterinary School; George H. List, Deputy State Entomologist, and Miss Miriam Haynes attended the picnic from the Agricultural College.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



FEEDING BACK TO COMPLETE SECTIONS.

"It now looks as if I would have a large number of unfinished sections at the close of the white-honey harvest. Because of the shortness of the season and the light honey-flow in this locality, only now and then a colony has completed even one super of sections, thus leaving the most of those worked for section honey with two or three supers of sections from one-fourth to three-fourths filled. Under these circumstances it seems as tho it would pay to mass all of the three-fourths-full sections on certain strong colonies, extract the honey from the rest of the sections, and feed for the completion of those massed nearly full."

This is something about which quite a little was written in the latter part of the last century; and while quite a few claimed to make a success of such feeding, occasionally the plan was reported a failure. It was claimed that those who failed did not have the right kind of bees, the colonies fed were not strong enough, the amount of brood and space given in the brood-chamber was not right, or else the honey fed back was not thin enough.

There is quite a difference in the character of the bees, even in the same apiary and of the same race. Some cap their honey with a smoothness and whiteness that is captivating to the eye, and store with energy and activity, even quite a distance from their queen and brood. Others have a disposition to cling to the brood-chamber, to crowd it with honey, and, when that affords no more room, to cease labor rather than overcome the disinclination to pass beyond the limits of the brood-nest into the surplus apartment above. In selecting bees to be employed for feeding back, no point is more important than that those should be chosen that enter the supers willingly. Hybrids of the German and Italian varieties are considered to be the best for the purpose of finishing up partly filled sections by feeding back extracted honey.

Then the character of the queen has quite an important bearing. The point here is that the queen should be prolific. Unless she is so, the colony will not have the numerical strength, and, what is more important, as fast as the brood emerges, the bees will crowd the cells with the feed.

The season also has much to do with this matter. That must be early—the earlier the

better after the white-honey harvest begins to wane. In selecting this time we gain in two ways—first, we avoid as far as possible the disposition of the bees to store honey in the brood-chamber—a disposition which increases as the season wanes; and, second, we secure the great advantage of having the work done during the hottest weather, during which alone bees produce wax and build comb most economically. The opportune time is the interim between the white-clover-basswood season and the late honey season.

For obvious reasons the brood-chamber should be small, because, otherwise, an opportunity is furnished for a large amount of brood, the value of which beyond a certain limit cannot be great, altho it would cost a large amount of the honey fed; and any honey, if stored in the brood-combs, is of less value than it was before. The capacity of five Langstroth frames is what I have used, and consider that better than either four or six. These five combs should be filled with brood as far as possible, and the remaining part of the hive made up of dummies or frames of sealed honey.

The further the comb in the sections is worked out, and the more honey they contain when they are given to the bees to be completed, the greater will be the relative profit. Providing the bees with sections containing comb well worked out and quite well filled with honey, such as are usually plentiful at the close of the early honey harvest is more important than any of the other points in securing the highest success in this feeding-back business. The combs are in condition for the process of filling to proceed at once, and comparatively little wax needs to be produced, so that the work is greatly hastened and the consumption of honey saved in every direction. The honey, also, in such sections, which is unsalable in that condition, is doubled in value by the completion of the sections. Indeed, without the motive of bringing such sections to a salable condition, feeding back would be of doubtful advantage.

For the purpose of feeding back, the extracted honey used should be thinned to near the thickness of nectar as it comes from the flowers; for if honey as thick as that which comes from sealed cells is used the bee will be slow in taking it, especially if the weather is a little cool. By thoroly incorporating with such honey one-half its own weight of water the bees will handle it more rapidly.

How about Honey for a Side Line?

BY RUSSELL WILMOT

So many things had been suggested for side lines that Tim Smithers was ready to declare there was nothing new under the sun. Tim was wrong, and, being a big man and a successful one, he was ready to acknowledge it. It is only the little two by fours who "never make a mistake, and then only for variety's sake!"

Tim was wondering on this particular early spring morning just what he could feature that the other fellow hadn't thought about, when a woman all out of breath hurried into his store and asked him in a peculiarly wheedling manner if he wouldn't *please* tell her where she could buy some nice honey, either strained or in the comb. She went on to explain that she had been in thirteen stores and had not been able to

right place this time. Seven is called the lucky number, and this is the fourteenth place, so it is doubly lucky."

The woman added, as she took the honey, that her small boy was sick and would not be comforted until she made him one of her famous honey cakes.

Tim Smithers winked four times again, turned the toothpick around to its original position, and reflected silently that this woman certainly had given him the hunch he was looking for. What he said aloud was simply this:

"Isn't that queer? We are planning to sell honey cake at our soda-fountain luncheonette—large, nice, square, luscious pieces of it. Wonder if your recipe is like mine?"

The customer assured him that hers was something extra fine, having been in the family for a number of years. She didn't offer to reveal what it was; but that didn't discourage Tim. He knew, if worse came to worst, the partner of his joys and sorrows, the renowned Mrs. Smithers, who was an excellent cook, could originate a honey cake that would surely equal any old moth-eaten recipe anybody might be able to trot out.

A reasonable amount of well-directed advertising reminded two-thirds of the women in Smithereen how good honey and hot biscuits were, how fine honey is on griddle cakes, how healthful a sweet for the children, and how nourishing as well. Tim soon found he hadn't bought nearly enough honey to supply his demand; but he soon corrected that mistake.

In the meantime his good wife had evolved several honey delicacies which brought every single man, every boarding-house victim, every small boy with a nickel, and every hungry school student to his counters. This is the way some of the good things were made.



locate what she wanted. It was either all dried up, mussy looking, or the people declared they didn't keep honey. Tim winked four times, turned the toothpick in his mouth around the other end to, scratched his head, and broke into a beaming smile.

"Well," he said at last as he placed the honey on the counter, "you've come to the

HONEYBEE CAKE.

Cream together one and a half cupfuls of strained honey and four-fifths of a cupful of butter. Have two whole eggs thoroly beaten and mixed with half a cupful of rich sweet milk; also sift three cupfuls of flour with two level tablespoonfuls of baking-powder, a teaspoonful of salt, one teaspoonful of cinnamon, three-fourths of a teaspoonful of allspice, and one-fourth of a teaspoonful of cloves. Add alternately to the honey and butter mixture a little of the egg and milk wetting, then a little of the flour combination.

When all the wetting and all the flour have been used, fold in three-fourths of a cupful of raisins and three-fourths of a cupful of well-washed currants. The fruit, of course, must be well floured first. Turn the dough into well-greased individual patty pans. Bake in a moderate oven until well done.

HONEY PUDDING.

Wash one cupful of rice and put in a deep baking-dish with one quart of milk, one teaspoonful of salt, the grated rind of one lemon, and one ounce of shredded lemon peel. Add eight tablespoonfuls of honey. Bake in a moderate oven, stirring frequently during the first hour. During the last hour do not disturb. Serve with thick cream.

HONEY FILLING FOR LAYER CAKE.

Cook half a cupful of honey and half a cupful of granulated sugar with two tablespoonfuls of hot water until it spins a thread. Remove from the fire and beat in the stiffly whipped white of an egg. Keep on beating until the mixture cools. Use between layers and on top.

HONEY BABIES.

Bring one pound of strained honey and one-fourth pound of butter to the boiling-point. Let it cool for half an hour, then beat in half a teaspoonful of cinnamon, one-fourth teaspoonful of ground cloves, one-fourth teaspoonful of allspice, the grated rind of one lemon, and one-fourth pound of chopped almonds. Sift one pound of flour with two level teaspoonfuls of baking-powder. Combine with the honey mixture and let it stand an hour. Roll out one-half or three-fourths of an inch thick, and cut into square or round cakes. Bake.

COLLEGE ICE HONEY DRESSING.

To one pint each of pineapple syrup, orange juice, and strained honey, add one level cupful of shredded cocoanut and one cupful of shredded walnut meats.

APRICOT HONEY.

To one cup of apricot pulp add one cup of honey and one cup of heavy cream. Drain canned apricots of their syrup, run thru a sieve, beat the cream, add the honey, and, lastly, fold in the apricot pulp. Serve as a top dressing for fancy ice-cream dishes.

STRAWBERRY HONEY.

To each cup of strawberries mashed and beaten, add half a cup of strained honey. Fold in the beaten white of one egg or four tablespoonfuls of marshmallow whip.

LEMON HONEY.

Cream three ounces of butter. Beat in one cup of honey and add the well-beaten yolks of three eggs. Stir in one-third of a cup of boiling water, and cook over boiling water until the mixture thickens. Remove from the range, and beat. Add three tablespoonfuls of lemon juice and three of orange juice.

Auburn, N. Y.

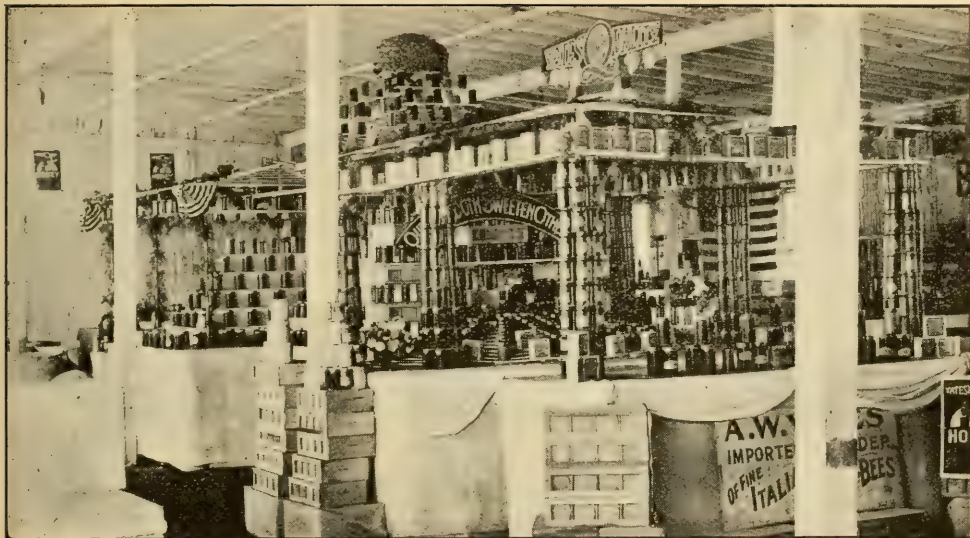
REMARKABLE DISPLAY OF HONEY BY THE CONNECTICUT BEE-KEEPERS' ASSOCIATION, HARTFORD FAIR, SEPTEMBER 6-11, 1915

BY BURTON N. GATES,

Associate Professor of Beekeeping, Massachusetts Agricultural College, Amherst, Mass.

As usual, the Connecticut Beekeepers' Association has made large exhibits at the Hartford Fair. In 1915, however, this exhibit was more attractive than usual. From eight to ten tons of honey, it was estimated, were exhibited. The Beekeepers' Association is exceedingly fortunate in having about \$500 available for premiums—\$200 from the fair company and \$300 from the state. The exhibit was largely competitive, altho there were numerous displays which were put up most attractively, but not for competition. The illustrations include some of these exhibits.

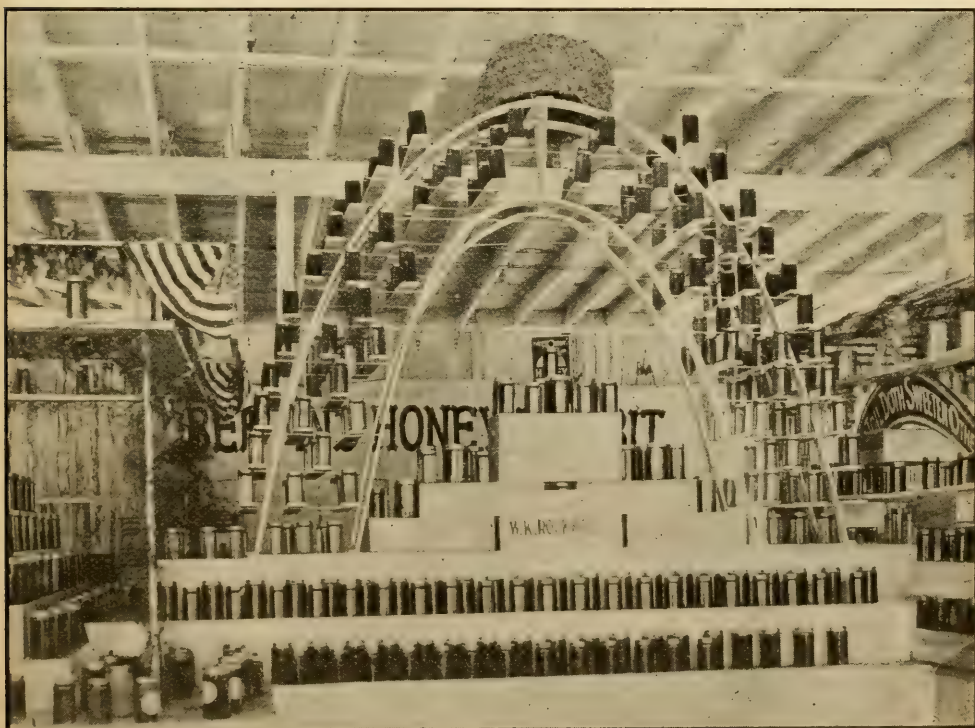
Besides the exhibition of honeybees, wax, apicultural implements, and honey cookery, there were concessions where honey, honey sandwiches, and honey fizz were sold. It was estimated that some five tons of honey were thus disposed of; that from 1000 to 1200 sandwiches were consumed on the grounds. As a new delicacy for the visitors at the fair, it was attempted to sell granulated honey in crisp ice-cream cones of the smallest size. The management, however, told the writer that these were probably too sweet to please the purchaser, and that the project was not particularly successful.



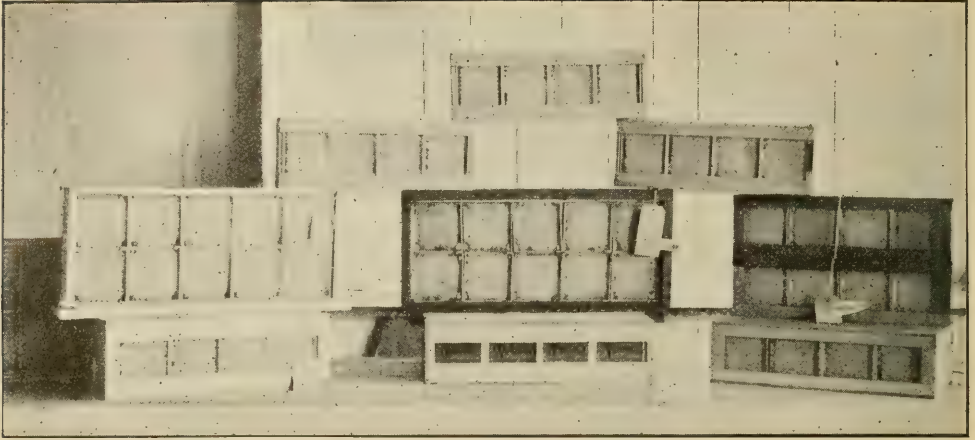
General view of honey exhibit, Hartford (Conn.) fair, Sept. 6, 1915.

The display of bees was found more extensive than usual. There were sixty colonies, each a single-frame nucleus, with the queen, workers, and drones, together with brood, pollen, and honey. In displaying

bees it is a great advantage to utilize merely the nucleus rather than a full colony, which was the older method of exhibiting. The nucleus, moreover, should not be too largely populated. In this way the individual



W. K. Rockwell's display of honey, Hartford Fair.



The prize comb honey, Hartford Fair.

bees could be more distinctly traced and the queen more readily found. Mr. A. W. Yates, who is superintendent of the bee and honey exhibit, strongly advocates a uniform glass nucleus hive which shall be utilized by each exhibitor. This adds to the attractiveness of the display, and facilitates in comparisons and judging.

Beeswax to the extent of 100 pounds or more was also exhibited.

Among the numerous calls in the premium schedule was that for a display illustrative of queen-rearing methods. The first premium was won by Mr. Yates, and is pictured on next page.

Of the competitive displays, Inspector W. D. Wright, of Altamont, N. Y., was the judge. Below is a list of prize-winners, and above is the photograph of the pile of premium comb honey.

It cannot be too strongly advocated, as an attraction which will draw crowds, espe-

cially to the concessioners who have honey for sale, to have a demonstrational cage in which live bees are from time to time handled. Nothing is probably more sensational on the fairgrounds. The writer has frequently heard remarks that these demonstrations eclipse the snake charmer in the fakir row. The public, not knowing too much about bees, is always amazed at the non-concern of the demonstrator in the cage. Mysticism seems to protect the operator. If he is a teacher he will, of course, lecture as he demonstrates to the public, explaining how he manipulates the bees, and, incidentally but strongly, instruct in the value of honey as a food.

The beekeepers of Connecticut are indebted to Mr. Yates for his untiring efforts in promoting beekeeping interests. One of his maxims is, "Let the bees draw the crowd." This is entirely practicable. Its magnetism may be judged by the numerous

offhand remarks of spectators. As the crowd drifts along the fairgrounds it may commonly be heard, "Oh, see the bees!" Then a group will turn into the display building where they observe a hundred or more lined up and waiting for honey sandwiches at the sandwich-booths, or a group anxiously awaiting their turn for honey fizz. Impelled by the interest of others, more fall in line. Thus it continues for hours.



Exhibit of beekeepers' appliances, Hartford Fair.



A. W. Yates' exhibit of queen-rearing appliances.

In commenting upon the success of the exhibition this year, Mr. Yates said it was the best and most satisfactory year in their history. Each concessioner had had good business, and had disposed of large quantities of honey. Moreover, the best of feeling had existed between competitors and the visitors.

It is a little surprising that more states do not bend their efforts toward a large honey exhibit, at least in one place in each state. It cannot be expected that the first year will reap the benefits which are resultant of several years of displays. From year to year the beekeeping exhibit at a fair becomes more and more a fixture. People hunt for it, in anticipation of seeing the bees or buying honey. Many a person goes to the fair purposely to secure a certain brand or kind of honey which he knows he

can get there. The writer most urgently suggests, for the consideration of beekeepers' societies, that they plan definitely at their forthcoming winter meetings for a beekeeping display at their prominent agricultural fairs next fall:

The winners at the fair were:

	Premiums won			Value of awards
	1	2	3	
William Bristol, Meriden...	0	2	0	\$16.00
C. H. Clark, Cobalt.....	2	1	2	39.00
H. W. Coley, Westport...	2	0	2	33.00
A. E. Grandell, Berlin	0	0	1	6.00
J. T. Cullen, Derby	0	1	0	8.00
William Ehouse, Bridgeport	0	2	1	17.00
J. G. Griswold, Hartford ..	2	0	4	39.00
Allen Latham, Norwichtown	3	2	0	46.00
A. W. Yates, Hartford....	6	6	0	163.00
W. E. Rockwell, Bloomfield	3	2	5	98.00
				\$466.00

In the culinary department there were but three entries—Mrs. A. W. Yates, Hartford, winning about one-third; Mrs. W. E. Rockwell, Bloomfield, and Mrs. L. W. Adams, winning the rest of the \$35.00 offered in this class. This department is, however, much appreciated by the beekeepers, and interests the public. It is of importance in all honey exhibits.

Amherst, Mass.

INEXPENSIVE BUT EFFECTIVE ADVERTISING

BY FRANK KITTINGER

The accompanying picture of my honey sign, which is in front of my home apiary, is a means of disposing of quite a quantity of honey. My apiary is located within view along one of the main auto roads between Racine and Milwaukee, where on some days hundreds of autos pass. Quite a few tourists see the sign and stop for honey. I intend having a sign somewhat similar to this at each of my outyards where I have honey for sale.

I also dispose of quite a quantity of honey thru the country stores.

We put up a two-pound can and five and ten pound friction-top pails for retail trade. When I first tried to get country storekeepers to handle my honey they thought they couldn't sell the two larger-sized packages, so that the first order was for more of

the small size than either of the two larger sizes. In nearly every case after the first order the succeeding orders were for more of either of the two large sizes than the small.

As an inducement for the stores to give my honey a trial I offered to put it in on condition that they give it proper display, and if it didn't sell I would take it back. As yet I have had to take back but very little where it has been properly displayed. I find that honey is something that will not sell readily if set behind a counter out of sight. It must be out where customers can see it.

I do not do any canvassing in the territory where the stores sell. The price is the same to consumers whether they get the honey at the stores or at my apiary. I run



The sign that did the business.

a small advertisement in one of our local papers, to keep my name before the people and let them know I am in the business.

HONEY.

Eat Kittinger's Honey. Phone 9333-L.

We put out nothing but a well-ripened grade of light extracted honey for our retail trade. Honey that is honey will give satisfaction, and help to advertise one's business. There is no use trying to work up a trade on honey of inferior quality.

Franksville, Wis.

[When Mr. Kittinger, of Franksville, Wis., hung out his sign, "Pure Honey for Sale," on the tree in front of his home, he not only succeeded in selling a lot of honey but in breaking into publicity on a national scale. The Cleveland Advertising Club, the Rotary Club, and the wholesale merchants board of the Chamber of Commerce, of Cleveland, were lunching together at Hotel

Statler one noon listening to a lecture by Frank Lovejoy, of the University of Wisconsin, on a survey of a Wisconsin county. The occasion was "Farm Market Day." Suddenly Lovejoy threw on the screen a picture of Kittinger's apiary and his advertising scheme. The speaker commented upon the value of the yard and the progressive salesmanship of its owner as indicating in general that farmers are waking up to modern business methods.

This "Farm Market Day" is being staged before advertising clubs and commercial organizations in all the large cities of the eastern half of the country by a group of thirty-five publishers of farm papers, headed by E. T. Meredith, of Des Moines, and about fifteen successful business men from small towns of the middle West. Their aim is to convince city people that the farmer is the biggest single buyer the manufacturer and wholesaler can find, and to show that he is as much a business man as they.—ED.]

PUTTING BEES INTO THE MOVIES

BY ERNEST A. DENCH,
Vice-president Photo-play Authors' League of America.

The motion-picture producer has no use whatever for the comedy of words. It must contain deeds full of mirth-provoking possibilities, and he has no doubts on this score when he introduces bees.

A well-known situation, with numerous variations, is to have the villain sitting in

the park. A bee lands on his forehead, and a close view is introduced to show the grimace he pulls. He flicks the bee off, only to have it land on the heroine's nose a little distance away. He, of course, gets in bad at once.

Another situation, always sure for a

laugh, is a character who keeps others at bay by threatening to release a hive if they advance on him. These stunts are comparatively easy for the director to put over, tho not so pleasant for the players who have to carry them out.

Not all films offer pure entertainment. The motion-picture producers, like the popular magazines, often put out a pleasing combination of entertainment and education. These educational films, so called, deal with all conceivable subjects; but were you to ask the motion-picture producer the most difficult kind of film to take he would inform you that they are studies of insect life.

All a magazine writer has to do is to interview a bee-farmer and obtain a few still photographs, perhaps already at his command. The film producer, however, in order to secure a convincing picture, must cover his subject in actual reality. He is accustomed to temperamental actors, but finds that bees will not stand for any rehearsals, and often refuse to act in the way required of them.

A producer about to take a film of bee-life will read up a book on the subject and prepare a scenario therefrom. This will probably take several months to produce, and yet at the most will yield only sufficient negative to occupy the screen ten minutes.

A motion-picture photographer of my acquaintance, who makes a specialty of educational work, told me that the hardest task he has ever been up against was filming a swarm of bees in action. He started by establishing a real apiary in the studio yard. Some incidents he obtained with comparative ease; but whenever he wanted to "catch" the bees in action they swarmed around him as soon as he began operations, so was compelled to beat a hasty retreat in the interests of safety first. He had the patience of a saint, and deserved to succeed.

The one and only cinematographer who has achieved a reputation for bee-films is J. C. Bee Mason. He has produced four motion pictures of the honeybee, the royalties from which have netted him \$10,000. In the true way of a pioneer, Mr. Mason had many set-backs before he succeeded, and is now quite hardened to stings.

The normal speed for the taking of pictures is sixteen to the second. Some time ago Monsieur Lucien Bull desired to show the movements of a bee's wings, and had to resort to his electric spark. Had he not done so the results would have proven as indistinct as an electric fan in motion. To accomplish his aim he set free a bee from the contrivance attached to his camera, which attained a speed of two hundred

pictures per second. The bee, however, was such a hustler in regaining its balance that only twenty pictures were necessary to record the stunt—the only time it has been accomplished.

THE SILENT SALESMAN

BY ED SWENSON

I find that a sign that tells what I have to sell is a great help to me in selling my season's crop of honey. I live on a well-traveled road right in the edge of town, and I find that this sign brings me many sales that would otherwise slip by.



The silent salesman.

If the goods are satisfactory, my customers tell their neighbors, who will also come to the place where they see the sign, as that is the mark the neighbors tell them to go by in finding the place. The sign should be about 4 rods from the road, so people can read it without stopping. But remember that, in order to work up a business, you must produce the best, as quality will be remembered long after the price is forgotten.

Spring Valley, Minn.

[See editorial.—ED.]



Exhibit of J. A. and Charles Kinzie, at the Riverside County (Cal.) Fair.

HONEY AND HONEY COOKING FEATURED AT A COUNTY FAIR

BY MRS. J. A. KINZIE

My husband, J. A. Kinzie, and his brother, Charles Kinzie, had an exhibit last fall at the Riverside County fair. This was the first time that either of them had exhibited anything at a fair, but they received many compliments and a special premium badge for a good display.

Eighty-two dollars in premiums were offered this year; and out of the fifteen entries J. A. Kinzie received six first and four second premiums, and Charles Kinzie received four firsts and six seconds. This they were proud of, considering that two other beekeepers had entries there who had exhibited before.

Another thing they were pleased with was the interest shown toward the bee industry

by the visitors. The two men were busily engaged nearly every moment explaining things and answering questions.

It was beneficial for the exhibitors as well, for a number of well-known beekeepers discussed various points of the business with them. The head florist of the Glenwood Mission Inn was pleased with the display of honey-producing plants, and gave the botanical names of each plant. I sent to the Root Company for their cook-book and made a few articles to exhibit to show that honey can be used instead of sugar or molasses in cooked goods. Many people were surprised to know this. We feel that we did some good in arousing the interest of the people in honey as a food.

Arlington, Cal.

A NATIONAL "HONEY WEEK"

BY LEWIS L. WINSHIP

My idea, which at present is nothing but an idea, will require the co-operation of beekeepers all over the country to make it a success. It is nothing more nor less than to establish a national honey week—store-windows all over the country to be given over to the display of honey. I would suggest that it be managed by the National Beekeepers' Association, and that all state

associations be asked to participate, as well as individual beekeepers. It could be managed similar to the "oyster weeks" and "coffee weeks" now in successful operation.

The first year this might not be a decided success, for it would take time; but with proper co-operation could it help but be one in the end? The easiest way to raise money for this undertaking would be to ask bee-

keepers to donate to this cause what they usually spend for advertising. Printing would be cheaper in large quantities; and, really, what is there to advertising in any form but printing? If the money held out, would it not be a good plan to get up a design for a window display similar to what was used for last year's coffee week? My plan would be to have individual beekeepers ask their grocer and other grocers in their city to put a display of honey in their windows for the week. Perhaps the grocer would not be handling honey at the time, but one could loan him enough in attractive packages to make a display, and let him settle for what he sells. Nine times out of ten he would become a regular customer when he sees how great his profits and sales were on honey. Attractive stickers would have to be furnished for beekeepers to put on their envelopes, stationery, etc. These would not necessarily have to be free, and I think that beekeepers would be glad to pay the post price per hundred for them.

A campaign of this size would be nothing for a large private concern; but to the average beekeeper it looks like a great task. Why should it be such a great undertaking

when we have the whole beekeeping fraternity to help? What beekeepers need is closer co-operation and efficiency. When a large private firm goes wrong they call in "the efficiency expert;" when a beekeeper goes wrong he throws down his smoker and quits. This should not be, and we shall never accomplish anything until we learn to stick together thru thick and thin, thru fat years and lean ones. If this is true in other things, it is also true in advertising, and we can accomplish a lot by sticking together.

When your brother beekeeper makes a sale of honey to an old customer of yours, don't say that you never will speak to him again. Ferret out the reason, and see whether cheaper honey, superior honey, or advertising did the stunt. When you find out, remedy the fault. Advertise if you want business; or if he is selling honey cheaper, find out if it isn't cheaper honey.

What we beekeepers want is big business, and we must create a sentiment in favor of honey to sell it. My idea of a *national* honey week is only an outline, and I hope I shall not have to leave it to posterity to see it exemplified.

Springville, N. Y.

APPEARANCE THE MOST IMPORTANT ADVERTISEMENT

BY RUTH C. GIFFORD

Honey, more than any other food, is sold by its appearance. People are in the habit of eating the other foods, and will buy them even when they are unattractive. But if the honey is a little unattractive they say, "Well, I guess I won't take any honey today. I can get along without it." How often I have heard that remark! And is there anything more discouraging?

On the other hand, even if a customer has not thought of buying any, when he sees some nice clean-looking honey he says, "My! but that is beautiful honey. I want some of that."

My father, who handles most of the honey locally, on a single trip often sells as much as six cases (whole case to a family) to people who never bought it before. The people say, "Oh! it looks so nice I can't resist it;" and its only advertisement is appearance.

Several years ago my honey did not sell well. In fact, it did not sell at all. I tried to make it as attractive as I would have wanted it if I had been the buyer. The care started at the time the honey was taken from the hives. Every section had to have all the cells sealed except the row next to the wood. Of course I liked it sealed too,

but that is not always possible. Not a single section containing unsealed honey (except in outside row) was ever offered for sale. The damage done to the trade, and the difficulty in selling unsealed honey, is almost unbelievable—unless you have had experience.

Then every speck of the propolis was cleaned from the outside, the edges, and the inside of the sections. The need of this work, in spite of the fact that it is often mentioned, cannot be too strongly emphasized. People call propolis and surplus wax dirt. The person who is selling the honey can talk himself deaf and dumb in explaining propolis, and the customer will turn right around and call it *dirt*. Cleaning the sections is hard work; but in this locality I have the choice of cleaning them or not selling them. It also keeps my trade. People often say, "I began to think you were not coming this fall. Two men have been here and their honey was cheaper than yours; but I waited for you. Their honey was *dirty*."

The final thing needed to help my honey was an attractive package. Cases holding twelve sections proved to be the most popular for family use. These were stained a

dark blue on the outside with indigo. That kept finger-prints out of sight; and, most important of all, the sections showed up beautifully white against the dark-blue cases. Another thing to be considered was that the cases could be used several times. If the outsides were soiled they were cleaned with a damp cloth. Then another coat of indigo made them look as good as new.

When the honey was to be exposed, as in stores, and for the fancy trade, each section was neatly wrapped in glazed paper and labeled.

In a nutshell, here for the average bee-keeper is the secret of successfully advertising honey. Good honey in well-sealed honest sections; scrupulous cleanliness, and attractive packages.

North East, Md.

BULK COMB HONEY IN CLEAN GLASS JARS

BY E. B. AULT

I am sending a picture of my display at my former home, San Marcos. It was exhibited at the Hays County fair. In the lower left-hand corner I had a frame of brood with a fine queen on it that I valued at \$50.00. In the showcase I had a printed card reading, "Can you find the \$50 queen?" It attracted lots of attention.

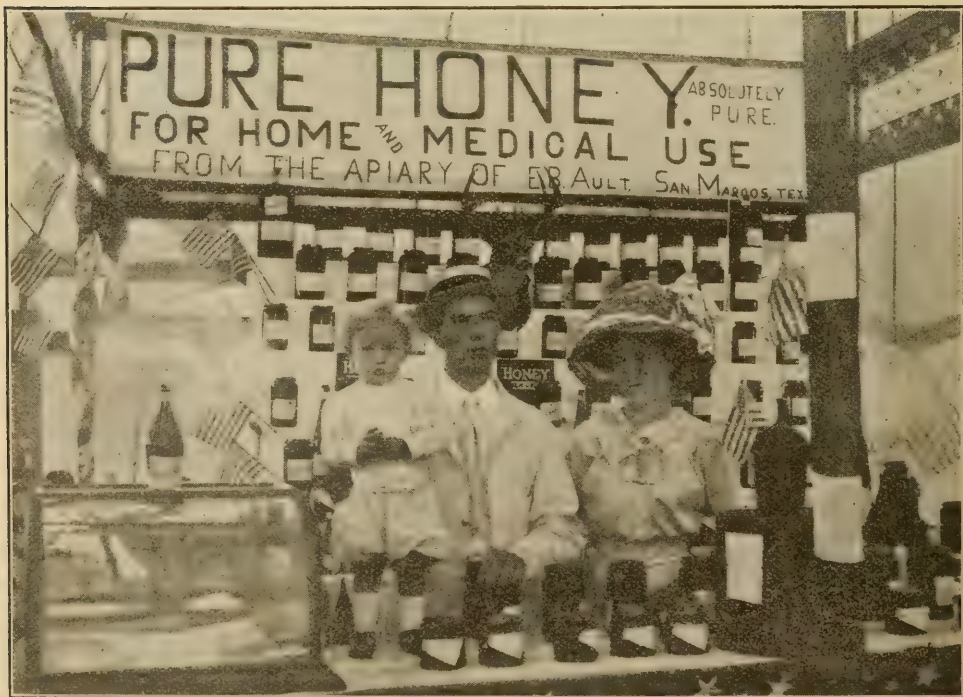
We used clear-glass quart and half-gallon jars with golden tops, to pack the nice bulk comb in. The comb was cut into strips that reached from bottom to top, and the jars were filled with extracted honey.

We also had bulk comb in pails on the lower shelves, but it does not show in the picture.

My wife and I did all the work, even painting all the signs.

We filled a number of bottles with beeswax; and when cold I broke the bottles, leaving the wax in attractive shapes. I also had a 70-lb. cake with a United States flag sticking in it. An exhibit of this kind costs very little, and yet it sold all my surplus honey the same week.

Calallen, Tex.



E. B. Ault's exhibit of bulk comb honey in fruit-jars at the San Marcos (Texas) fair.



An exhibit of many kinds of fruit and berries canned and preserved in honey. Note.—The apples shown on the table in front belonged to another exhibit.

EXHIBITING HONEY PRESERVES OF MANY KINDS

BY G. A. KOGER

The picture above shows my exhibit of honey and fruit canned with honey at the Gem State fair, Oct. 5 to 8, at Boise, Idaho. I had the following fruits and preserves put up with honey only—no sugar:

Peaches, pears, blackberries, black and red raspberries, logan berries, gooseberries, tomatoes, cherries, strawberries, peach and pear preserves, and jonathan-apple jelly. Every one was much interested in this part of the exhibit.

The list of awards in the bee and honey department is as follows:

Best five cases comb honey: John Bliss, Ustick, 1, \$15.00; E. F. Atwater Co., Meridian, 2, \$10.00.

Best twelve jars extracted honey: G. A. Koger, Meridian, 1, \$15.00; E. F. Atwater Co., 2, \$10.00.

Best display extracted honey: G. A. Koger, 1, \$10.00; E. F. Atwater Co., 2, \$5.00.

Best cake beeswax, G. A. Koger, 1, \$6.00; E. F. Atwater Co., 2, \$3.00.

Best display apiary products: G. A. Koger, 1, \$15.00; E. F. Atwater Co., 2, \$10.00.

Best single-comb nucleus three-banded Italian bees: G. A. Koger, 1, \$10.00; E. F. Atwater Co., 1, \$10.00.

Best single-comb nucleus Carniolan bees: E. F. Atwater Co., 1, \$10.00.

Best single-comb nucleus Caucasian bees, E. F. Atwater Co., \$10.00.

AN EXHIBIT SHOULD SHOW MORE THAN HONEY ALONE

BY J. P. LUCAS

If every beekeeper would try his best to make a good exhibit at the fairs the attention of the people would be called to honey in an effective way, and they would be more apt to use it. It is necessary to go further

than setting up a long row of jars of honey. Next year I shall try to get a premium offered for the best display of food cooked with honey, and of canned fruit. I also expect to have a collection of different kinds



J. P. Lucas' exhibit at the Kansas State Fair. Mr. Lucas, for several years, has featured fruit canned with honey. Some of the jars were filled in 1911, and the fruit is still keeping well.

of honey produced from different honey-plants. The more we can adopt these new ideas the more we get out of the old rut.

The illustration shows my exhibit at the State Fair at Hutchinson last fall. My space was about thirty feet in length; and if it had not been so far from my home I should have made a larger exhibit. As it was, my bees and fruit in the glass hive convinced many people that bees cannot destroy fruit.

In the center of the exhibit I had all my different kinds of honey labeled according to the source. Just below this was the fruit put up with honey in 1911. I have made canned fruit a feature every year, and have had some of it on exhibition every time. It is keeping well, and I have convinced a good many of the value of honey for canning. By request I had the recipes printed.

Topeka, Kan.

RIGHT AND WRONG WAY OF ADVERTISING HONEY

BY JOHN W. LOVE

Advertise first in your local newspapers. Your own town and county are likely to prove easiest developed of all markets because of low transportation costs and your own position in the community. Too many overlook possibilities in advertising right at home.

After that, use papers in neighboring towns and then the city dailies, depending on your capital and selling plan. Farm

papers are probably not as suitable for reaching the honey-buying public as the newspapers and general magazines.

Keep at it. If possible advertise at least once every week to keep the demand steady. An occasional advertisement is likely to be the most expensive in the long run.

In writing your advertisements, make plain in your headline what you have to sell. Such headings as "For Sale," "Notice,"

and "To the Public" are too general. The exclamation-point has no place in an advertisement. Avoid in headlines such smart-Aleckisms as "Don't Read This."

FOR SALE

Good pure honey made by our own bees.
Choice comb and extracted.
Will sell cheap.

ALEX. McPHERSON
R. D. 7

Head too general and matter uninteresting.

It is well to insist on having your advertisement set up in good style. Avoid heavy borders and glaring "boldface" type. The style of the type should be consistent throughout—that is, don't have the printer use one kind of type for the heading and three or four others in the body of the advertisement. People are likely to realize such an advertisement is not in good taste without knowing exactly why.

Avoid having too many display lines. After the heading, it is well to follow up with a paragraph or two on honey rather than a number of short fragments one above another. The second of the "horrible ex-

PURE HONEY!

60-lb. can, \$6.60

Wm. ARNDT
Ganges, O.

Poorly set up. The various type styles give bad effect. Honey will not retail in such large packages.

amples" on this page illustrates the point, while in the first the sentences are not complete.

It should hardly be necessary to say, keep everything else than honey out of the

advertisement. If you have eggs or hogs to sell, advertise them in another place.

Change your advertisement frequently. A change will attract attention, give pleasing variety, and cost nothing extra. It is not infrequent to find the faults of such examples as the two on this page perpetuated thru issue after issue of a paper.

Generally it is best to name the price of your product in the advertisement. Even the people who are interested often forget to inquire for prices, and the effect of the publicity is lost. If the figures are given they can order at once.

Honey-producers who sell to the retail trade thru the grocery stores or direct to the consumer find that honey must be put up in small containers. The average family would have no use for a sixty-pound can of honey, even if father could raise the money. A one-pound jar is not the smallest size which can profitably be put up, honey-distributors have found. By making the larger quantities a little cheaper in price per pound, their sale is encouraged.

Try to have your own advertisements read as naturally as tho you were talking to a friend about honey. When you sit down to write a selling talk, imagine yourself earnestly arguing honey with a prospective customer. Naturalness goes a long way in publicity. Being natural creates confidence. The writer who attempts unusual effects without long training is likely to make his readers suspect that he is trying to "put one over." Even so, clearness in thought is usually the mark of highest skill.

In pointing out the characteristics of honey, appeal to the love of children, one of the most universal of human feelings. Make it stand out so plainly that any one can grasp the meaning. What is good for youngsters ought to be good for grownups.

Perhaps the reason honey is so often regarded as a table luxury is that honey-producers themselves often fall into the habit of looking at it in the same way. To get the public out of this rut, compare honey with other foods from the standpoint of price as well as appetite.

INSPIRING TEACHERS WHO WILL INSPIRE BOYS

BY C. S. RHEA

Realizing the desire of the rural population, especially the young boys of the country schools, to drift to the cities, the superintendent of public schools of Hart County set apart Sept. 10, 1915, as "farm day," and required the teachers to carry their schools to some farm near by, which was

used to instruct the children on "better farming," and to arouse an interest in farming. The superintendent visited all the schools of the county that day, with a company of Hart County high-school professors, and the editors of the *Evening Post* and *Farm and Family*, both of Louisville,



Demonstrating bees to a bunch of high-school teachers.

Ky. Mr. James Speed, editor of *Farm and Family*, gave a talk on sweet clover. Then I invited them to visit my apiary. After being with me about fifteen minutes they went on to the next school.

Mr. Speed was very much interested in my scales, which consists of a steel shaft resting on a pivot fastened to a tree, with a hive on one end and a weight on the other. The shaft has 1-lb. notches on it,

which enables me to keep tab on my apiary. A tin bucket with a brick in it answers for a weight. The scales may be seen just beyond the extractor, in the picture.

The small hives in the foreground are my queen-mating nuclei. They have a division in the center, with an entrance at each end. I use full-sized Hoffman frames. I can leave my queens in them all the season if I don't have a demand for them.

Horse Cave, Ky.

POSTER-STAMP IDEA FOR INCITING THE HONEY APPETITE

BY JOHN R. POMEROY

I think if Walter S. Pouders had difficulty in getting some one to pay attention to his letters before, he has struck a chord in the Feb. 15th issue, page 151, that ought to stir every beekeeper who is interested in getting a better market and better prices for his products. I am in the advertising business, and I have been cudgeling my brain for some solution to the question of raising money for advertising honey, and I must confess this scheme of Mr. Pouders looks good to me.

While I agree with him that the clover head does not make an especially pleasing picture for this purpose, still I would not be in favor of a non-honey-producing flower for an engraving of the kind. Suppose we offer a premium to GLEANINGS' readers for suggestions. We ought to get something pretty good somewhere among all this gray matter. For that matter, nearly all the large engraving houses will now furnish sketches for poster stamps as well as make up the finished plates to work from. By all

means let's give it a trial, anyhow. There is not a beekeeper in the country who could not use a hundred stamps to advantage, and I know of several in this county who could use thousands. It would certainly mean a tremendous boost for the honey business. The money to be derived from these stamps

would, of course, be used to start a national advertising campaign along the line of "cream of wheat" and others, and afterward some kind of plan might be devised to get each producer to contribute according to the amount he was benefited. What do you say, honey-men?

Gladwin, Mich.

SOME OF MY ADVERTISING SCHEMES

BY DR. A. F. BONNEY

If the beekeeper with a moderate number of colonies wishes to save in advertising he must first get in with one or more papers near his home town, and send them "news"—local stuff which the editors will be glad to pay for with three dollars' worth of advertising in preference to giving up a dollar cash. In season I advertise, using short snappy items. For a sample: "I am now taking off some very fine white-clover honey, and you would better engage yours. It will not last long." This is enough for once. I try to change weekly, and one or two lines is enough, for everybody will read one line while but few will pay attention to twenty.

It will, of course, do no harm if, in the height of the honey season, you use a good-sized space for a standing advertisement, say a space two columns wide and five to ten inches deep, and a cut of some kind will add materially to the drawing power of the advertisement—say a cut of a large bee or a skep. Do not try to put a history of beekeeping into this space. A simple statement that you have some good, clean, pure honey for sale will be enough unless you see fit to print a price list. I hardly approve of that, however, unless you deliver the honey personally or by mail. The average purchaser of any kind of goods dearly loves to have them delivered—anything from a spool of thread to a diningroom set.

All this is contingent on being able to furnish news to the papers; and to do that, all you will need do is to see the editor. You may not have the "gift" of writing, nor do you need it.

Here are a few samples of the matter I get into the papers to advertise honey. In these I do not mention my own goods, for I am the nearest honey-producer; and if, when people want honey, they will not respond to former and current advertising, my time has been wasted.

"A curious experiment. Take a loaf of home-made bread. Cut from it a slice. Cover one side with good fresh butter, and on that put a thick layer of honey. Give it to the first child that comes along. The in-

stant assimilation of the compound by the kid is the joke."

"A queen-bee weighs a matter of ten grains, and \$1 is an average price for her. At that rate a thousand-pound steer would sell for \$717,000."

"A queen-bee does actually nothing but lay eggs, and will deposit from 1000 to 3000 per day. I am trying to study out some plan by which I can cross the bee and a hen. Think of 3000 eggs a day for three months at present prices."

"A colony of bees often produces a surplus of 200 pounds of honey per year, which, at only ten cents a pound, means \$20. Honey often sells for 20 cents a pound."

"American honey is the best in the world, and is, generally, sent to all parts of the world. A matter of \$25,000,000 worth is produced annually—three times the salmon and double the orange sales, and the output is increasing rapidly."

"When a queen-bee is less than two weeks old she goes out on her wedding-trip; returning, she never again leaves the hive except to accompany (not lead) the departing swarm."

Any one with a knack for writing can get up an unlimited number of such paragraphs, and almost any newspaper man will gladly print them, as they are interesting facts. There is no objection to using the above for the good of the beekeeping world.

I have kept some track of the advertising I have done in four papers for the past year for the store and the honey; and at four lines to the paper per week and 5 cents per line, it totals a money value of about \$40.

In addition to this I have something to advertise—"Bonney Honey" on every envelope I send out, if nothing more than the little red sticker, "Eat Bonney Honey." From May until I am sold out in the winter I use a price list, as I do a considerable mail-order business.

Some beekeepers objected to the little red sticker, "Eat Honey," when I offered it to the beekeeping world. The logic of events

has proven them wrong, for they are now sold by the millions, and the demand is increasing, I am informed.

The suggestion has been made that we beekeepers put out a writing-tablet with a honey advertisement on the cover. The first question that arises is: "Who will pay for printing the covers?" In our store we sell a writing-tablet 6 x 9 inches in size, 15/8 inches thick, weighing 1 1/4 pounds, for five cents, and make 20 per cent profit. It has a red cover on which is printed "I am it."

What could be put on the cover that would convey any message of value to children under fourteen years? and out of an assortment of twenty makes of tablets how could we induce the child to buy any particular make?

Like the little red sticker, "Eat Honey," scriptural quotations regarding honey, and

literature regarding the food value of honey, there is an element of good in the idea; but the only way to use it will be to induce some manufacturer of tablets to get out a natural-history series of tablets with pertinent paragraphs about bees and honey, if it is possible to do so.

The tablets cannot be sold by dealers in beekeepers' supplies, for children do not go there. Drugstores, bookstores, and general stores are where such things are most sold and must be kept. I do not know how many school children there are in this county, but there are thousands.

Personally I think a sign on a building, "Eat Honey," where the children can see it daily, would do as much good as a few writing-tablets scattered about the county. However, advertise, and keep eternally at it.

Buckroge, Ia.

CHEAP ADVERTISING

BY TARTLTON-RAYMENT

When we are of an analytical turn of mind and probe into some of the weaknesses on the business side of apiculture, the first thing that arrests our attention is the negligence of many apiarists regarding the value of their stationery as a means of advertisement. Some may suggest that we attach far too much importance to mere scraps of paper; but from our viewpoint the subject is well worthy of more earnest thought than is usually bestowed upon it. To enter upon a disquisition as to the value of judicious advertising would be to labor the point unnecessarily; but since striking, well-printed stationery (labels of all kinds are included in the category) may be the means of scoring some beneficial publicity, not to provide it is to throw away foolishly that which more astute managers spend huge sums to secure.

Of course there are thousands of keen bee-farmers who fully realize the advantages to be thus gained, and who incur considerable expense; but I am honestly of the opinion that the average "honey-grubber" is far and away too careless. I frequently receive communications that give anything but a good impression of the writer's business—usually a cheap plain envelope destitute of any attempt to keep the sender's business before the recipient. The same criticism can be directed at the writing-paper.

The printing of gaudy, bombastic claims, and hyperbole, is ill advised at any time; but a well-set-up head, especially a neat

pictorial one, nowise detracts from the businesslike appearance of the epistle.

A large number show a predilection for a "cut" depicting a queen-bee. However, such a picture conveys but little to the outsider; and, if of small size, often passes quite unnoticed. On the contrary, a neat etching of the apiary may be made to exhibit notable esthetic judgment on the part of the owner, and, as such, arrests attention and evokes admiration. The latter are the prime requisites in all successful advertising schemes.

Some make use of a "catchy" word or phrase, very successfully, tho of course the benefit that follows is not then due to any artistic appeal but to the whimsical or other presentation. Some few refrain from printing anything other than a bald announcement of name and address, arguing that such a course is undignified. Many would suggest a hesitancy on the apiarist's part to acknowledge the source of his livelihood. From time immemorial apiculture has claimed among its devotees men of high attainments. Then why should not we, humble "grubbers of honey," extol the wonders of the bee? All the foregoing remarks apply with equal force to bill-heads, menus, labels, etc.

In the every-day conduct of our business we are particularly careful to see that all correspondence and goods are despatched with a tradesmanlike finish. Shall we be pardoned if we suggest that a streak of the artistic in our composition is, perhaps, re-

sponsible for our insistence on this point? We not only utilize a half-tone etching for all our paper and labels, but we also make use of play on a registered word. The envelopes read:

From T. RAYMENT,
Breeder of Queenly
Queens.

"Queenlea" Apiaries,
Briagolong.

It is not rare for us to receive mail from overseas inscribed simply with our name and that of the apiaries, such is the value of a novel word.

All our honey packages have labels that reach right around the tins; and when they are standing in a shop or on a wharf or at a station they make a splendid advertisement. We have repeatedly booked orders from people quite unknown to us personally, but who had noticed our honey *en route* to other districts.

As examples of what we consider effective designs I am forwarding an original drawing of a post card advertising or boosting



Post card for use in selling honey. Designed by T. Rayment, Briagolong, Victoria, Australia.

honey. Of course, all bee-farmers are not draftsmen, so we are sending this one along because there is a call for such an article in *GLEANINGS*—p. 167, Feb. 15. With your permission, Mr. Editor, we should like to enter it for the gold-medal, prize card, hearty approval, or whatever it is, Messrs. H. L. Case, F. Greiner, and W. F. Marks award for good post cards.

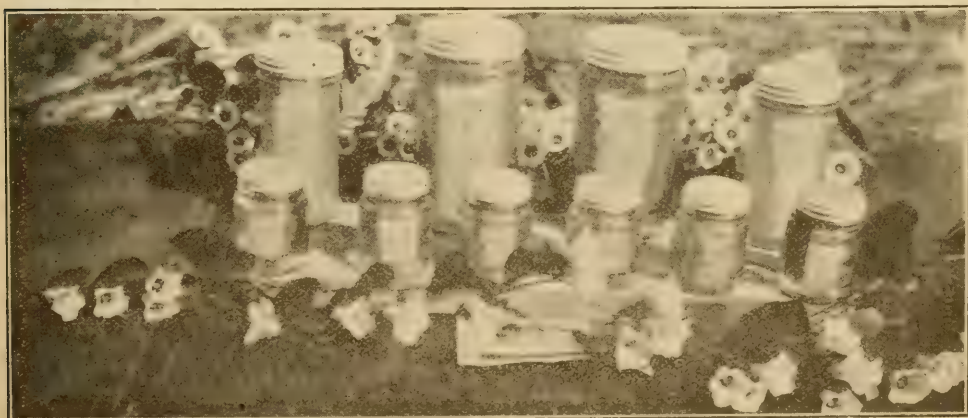
Briagolong, Vic., Australia.

BULK COMB HONEY IN GLASS TO ATTRACT SALE

BY D. W. MILLAR

I use the accompanying pictures of bulk comb honey in glass in advertising my honey. I have found that honey in this

form will sell even to people who do not like honey nor advise its use. At the same time, honey in glass without comb, and at a

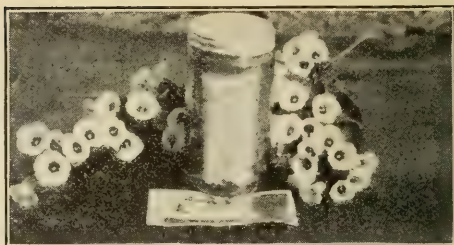


Bulk comb honey in glass is attractive.

lower price, will not sell. Of course, later on those who get to using honey and acquire the habit so that they become regular customers buy the plain extracted honey in gallons and even larger cans.

This honey is from the *campanilla blanca*. I have adopted the three-ounce, the half-pound, and the one-pound jars. Situated as I am, larger sizes show too much breakage, both on the empties shipped here and on the full jars which I ship out.

Holquin, Cuba.



Campanilla blossoms and a sample of what the bees get from them.

PHOTOGRAPHIC POST CARDS TO SELL HONEY

BY GEORGE H. ELSKAMP

Last year I took off 3000 sections and about 1000 lbs. extracted honey from twenty colonies, spring count. My queens are

Practically every colony also had a super not finished.

Maurice, Iowa.



Copy of one of the illustrated post cards that George H. Elskamp, of Maurice, Ia., uses to help sell his crop.

nearly all leather-colored Italians, but quite a number are mismated. One colony had its 12 supers in all; another colony that was preparing to swarm I divided, and it had 18 supers and one hive-body between them.

[Mr. Elskamp uses post-card views of his apiary, bees, etc., with appropriate inscriptions for helping sell his honey. The 4000 lbs., mostly comb honey, from 20 colonies, spring count, is not a bad record!—Ed.]

AN EXHIBIT THAT PAID

BY M. H. HILL

I have been a beekeeper for 20 years, and there is no branch of the business that I take more pleasure or pride in than the marketing of a crop of honey, coming in personal touch with customers, either retailers or consumers.

At the present time I have charge of oil property and beekeeping is a side line. In this I have been handicapped in meeting customers and having a chance to talk honey. The opportunity presented itself last fall, when our first county fair was held at

Dewey. Knowing in advance the dates the fair was to be held I obtained consent from my employers to have my vacation at this time, and, assisted by my wife, we prepared 1000 lbs. of our crop for this exhibit. Most of my honey is put up in the bulk as recommended by Mr. Louis Scholl; and I wish to say, in thanks to Mr. Scholl, that putting up bulk honey has always been a success with me.

Even in Northern Wisconsin, where I began the practice, I always marketed my No. 2 section honey this way, obtaining the same price as received for No. 1 section honey; but in Oklahoma conditions are more favorable for putting honey on the market in bulk. Putting up honey in glass containers in an attractive shape is no piker's job, and no one should attempt it without having proper utensils for doing the work.

The managers of the fair allowed me to sell honey the last afternoon of the fair.



1000 pounds of bulk comb honey exhibited by M. H. Hill at the Washington County (Okla.) Fair. Mr. Hill made his exhibit educational in that he showed every stage in honey production—the full combs in observatory hives of bees, uncapping, extracting, clarifying, and bottling.

My exhibit sold in a few hours, and the advertising this exhibit gave me well repaid me for the effort. The sales at this one fair, and the advertising it gave me, made it possible for me to own a five-passenger Overland touring-car.

Dewey, Okla.

HOW THE BEE HELPS FEED THE WORLD

BY B. KEEP

The January number of the Geographic Magazine is devoted almost entirely to a most interesting and liberally illustrated article entitled "How the World is Fed." It is not possible in a limited space to review this exceedingly instructive article in detail, but as beekeepers we are specially interested in the following, which is copied in full:

"The Industrious Bee."

Nowhere else in the world is the majesty of small things more strikingly revealed than in the story of the production of honey in the United States. That great decennial interrogation-mark which marches every ten years thru the homes of the American people, and asks them a thousand and one questions, has ascertained for us that the bees of the country annually produce twenty-seven thousand tons of honey. That means fifty-four million pounds! Truly the busy little bee must improve each shining hour to give to the American people fifty-four million pounds of honey, in addition to providing

for its own needs. The number of trips from hive to flower, and from flower to hive, with their tiny loads of honey-making materials that the bees must have taken to bring us these fifty-four million pounds of honey defies estimate; but they afford us an inspiring lesson of what the faithful doing of small things may accomplish."

Note the sentiment of the closing lines.

When the time shall arrive that beekeeping is the business of specialists on a large scale, these figures will begin to appear small by comparison.

What is really to be desired is not more beekeepers but better beekeepers, as has been so often said; and the only hope seems to be in keeping bees on a larger scale by most advanced methods.

New Jersey.

[The census figures are very conservative. Reliable estimates show that the total amount of honey produced—including both comb and extracted—is not far from 200 million pounds.—Ed.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

Henry Appleblossom has a new patent pending. He has an imitation honey that is nearly as good as the real thing; and, by ginger, it costs only three times as much to make it.

Bees Creatures of Habit.

It would seem that there are more influences than at first appear which are given effect by the placing of supers above a colony of bees. During a generous honey-flow many things may be done which, under other conditions, would not be at all advisable.

"Ample superage" is recommended to lessen swarming, and it usually seems to have that effect, be it more or less. But to secure the best result in that direction, supers must be put on considerably in advance of any sign of swarming. Then if outside temperatures should be rather low (usually at night) this large empty space above is very likely to hamper brood-rearing and active "building up," and the bees come to regard that space as something which they "have to put up with," very much as we would regard a vacant upper story in our house which we would come in time to regard as not belonging to us.

If the farmer has great barns, and an immense hay crop, he just goes ahead storing hay into those barns, and does not worry about their bigness; but in ordinary or lean circumstances he is likely to calcu-

late where he can stow to the best advantage what he has, and it is safe to say it won't be scattered or stowed in some far corner.

In regard to their housekeeping, bees appear to acquire habits somewhat like human beings. This colony goes and comes via the right end of the hive-entrance, that colony from the left; this one establishes its brood-nest on the left, while the next has it on the right side of the brood-chamber. One colony is possessed to gum up the rabbets, while another gums up the bottom-board; this one stores honey in the outside frame, while that one stores pollen there. Naturally, when the flow becomes generous, the bees, having acquired the habit, continue to store in the brood-chamber until "it's standing room only." It is scarcely necessary to point to the result of this in diminished brood toward the end of the season, when extensive brood-rearing is most desirable to provide young bees for winter.

The moral of all this is that we should first decide whether then it is profitable to rely upon excessive supering to discourage swarming, or to treat that as a separate problem, and add supers but little in advance of present need, whereby no habit of storing in the brood-chamber is induced. From the 1914 season's experience as here suggested, the writer is inclined to be strongly in favor of the last proposition.

To sum up, let us say excessive supering seems to have much the same effect as insufficient supering—the bees in one case storing below from choice (and habit), and in the other case from necessity—the happy medium being most desirable in order to get surplus stores where wanted.

Lyndhurst, N. J.

B. Keep.

The Percentage of Mismatched Queens Received from Breeders.

I gave this matter up years ago. After spending a considerable amount in stamps, and wasting a lot of energy in a futile endeavor to secure something like uniformity, after appealing to bee-journals and experts for assistance, I found that I was simply traveling around in circles. In the absence of a fixed standard, breeders can pass off almost anything upon their customers with comparative impunity. There are, of course, breeders who are reliable, who have brought their stock to a high standard, as bees go, and who are conscientious in their business dealings; but a great many are those who have simply failed as honey-producers, and turned their attention to queen-rearing. These, having neither the requisite training nor a location where pure mating is possible, are, by glowing advertisements, distributing an inferior strain of bees thru an already non-uniform stock.

Los Angeles, Cal.

Arthur Williams.

Are Moldy Combs where Bees have Died Fit to Use Again?

Of 30 hives from last fall I have at present only 11, all in good order. The 20 that are dead I cleaned out today and both hives and combs are very moldy, due to the moisture of the adhering bees. The frames are nearly all of the old V shape, and I wish to discard them. Is the moldy comb still fit to be used to make into new foundation?

Some of the frames are Hoffman, with wires and good comb. What can I do to get the bees out of the cells? Do you think that these frames could be used again, even tho they are somewhat moldy?

R. A. Dehmel, M.D.

South Germantown, Wis.

[The combs you refer to can be used over again. The fact that they are a little moldy, or contain dead bees in the cells, will do no harm. The bees will clean them out, dead bees and all, very readily, and use them over again. Of course, any combs that are crooked and otherwise undesirable should be melted up.—Ed.]

How to Transfer from a Log.

While cutting logs in the woods we cut a bee-tree. They were in a limb about two feet in diameter, and about 50 ft. from the ground. We cut a block off about 6 ft. long; stopped up the hole with mud, and hauled it home. Now the puzzle is to get the bees into a hive. We were in hopes of getting a swarm; but as none has left so far we should like to have the bees that are in the log. If you could suggest any way it would be greatly appreciated.

Youngstown, O.

Paul Walters.

[We should treat this log gum exactly as tho it were a box hive, and transfer by the Heddon method. You will have to pound a little longer and a little harder because the trunk of the tree, being thicker, is a little harder to get the bees out of; but if you persist we think you can do it without much trouble. It will not be profitable, at any rate, to keep the bees in the log, for you will not be able to get any honey from them—that is, fit for table use.—Ed.]

How to Handle Combs after Extracting.

E. S. Miles' article, p. 721, Sept. 1, touches on a very interesting and important subject. How would it suit Mr. Miles to bore, say, an inch hole in his escape-boards and fit it with a tin slide which could be operated from outside the hive, and then, when extracting, leave the escape-boards in place and in the evening return the wet supers and open the slide? When the bees have cleaned up, close the slide and remove when the super is empty. Of course it does not do to leave escapes too long on hives or they may be stuck up by the bees. Personally I don't favor any plan which involves a general mix-up of the wet combs for fear of spread-

ing disease if such should get a footing unknown to the apiarist. By this plan the bees clean their own combs. It may be a bit slow, and mean having a lot of escape-boards; but is not that better than risking spreading foul brood all thru the apiary before one is aware of its presence?

J. H. Todd.

Renwick, Blenheim, Marlborough, N. Z.

Two and Three Eggs to the Cell; What is the Trouble?

I hived two swarms of hybrids on their old stands, moved both hives (parent colonies) away yesterday several hundred feet. One swarm had issued Thursday, the other last Monday. This morning both queens were dead, and one hive had over 150 dead bees before it.

I purchased three untested Italian queens late last summer, one being O. K., very prolific, and swarmed. The second one was also very prolific, and I have now two supers on and no sign of swarming, but I now find two or three eggs in a cell. The third one did poorly after I put her in, altho she had quite a few bees at the opening of spring. But they dwindled down so till there wasn't a pint in the hive, and then I discovered many cells with two or three eggs and quite a few with four or five. There were no laying workers, for I found both queens and killed the one in the weak colony, and then found no more eggs. But then I found the other one doing the same thing.

C. A. Colell.

Lincoln City, Del., June 5.

[In the case of the two hybrid swarms it is evident that the bees became more or less mixed, with the result that there was some fighting in the uniting. The fact that there were so many dead bees in front of one of the hives would indicate that there was something of this trouble. Why both queens should be dead we can't understand, unless one or more of the virgins went forth with the swarms. In that case the virgins would destroy the old queen. Virgins are usually not hatched when the swarm issues. The probabilities are that you would find young virgin queens in both the hybrid colonies, and laying by this time.

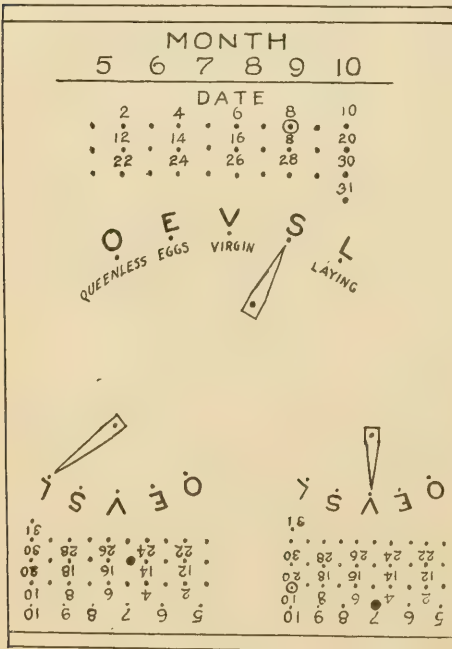
We assume that the three untested Italian queens referred to in the next paragraph have nothing to do with the two hybrid swarms.

The fact that their colonies are not swarming may be a good indication, but the further fact that you find two and three eggs in a cell indicates perhaps that the old queens have turned drone layers, or it may indicate that honey has been coming in, and the queens cramped for room so they are laying two and three eggs in a cell. This does not very often happen, however. The intimation that all three of the colonies have two and three eggs in a cell rather indicates either laying workers or drone-laying queens, but it is a little remarkable that all three

colonies should be afflicted with the same trouble. Without looking into the hives we are not able to offer you any satisfactory explanation.—Ed.]

Hive Indicator.

The illustration represents the cover of my eight-frame hive divided into three two-frame nuclei for queen-rearing. You will notice that all records for dates can be kept by using two small nails—one for the month and the other for the day. The pointer indicates conditions; O, queenless; C, cell; V, virgin; S, saw, but not laying; L, laying. I use a small brick as soon as laying begins, so I can see at a glance where my laying queens are, clear across the yard. The bricks I use are 2 x 4 x 7/8, made of cement; and I use them exclusively on full colonies when requeening.



Correction: Instead of E for eggs it would be better to have C for cell.
Forest, Ont. I. Langstroth.

Requeening for Paralysis.

I want to give my plan of getting rid of bee paralysis. This disease got in my bees from queens that I bought. I hated to kill these fine queens, but soon two-thirds of my colonies were affected. At this time about half of them were black. I tried several plans, but it kept coming back. I finally found a plan that eradicated the trouble, and I am willing for others to try it.

Kill the queen, and eight days afterward cut out all the queen-cells that have been started, and provide eggs from a queen that has never had paralysis. Let the bees raise

their own queen in the hive right with the sick bees. They will not swarm out, even if they have a dozen cells. This plan gets rid of the trouble, and it will not return.

I have some colonies that have never shown the least sign of paralysis, altho bees from colonies all around were dying. It is these colonies that I get the eggs from for breeding.

No doubt some queen-breeders do not pay enough attention to this matter. They are careful to breed from stock that does not become diseased. Colonies headed by such queens will live right in the midst of these and not show the least sign of it.

Mathews, Ala.

M. S. Nordan.

The Liability of Express Companies in the Shipment of Bees.

If I sell to John Doe, Canada, swarms of live bees with queens, f. o. b. Fitzpatrick, Ala., and I deliver them to express company, get their receipt for the same and mail it to John Doe in Canada, and there is unwarranted delay, is the express company liable if bees are dead? In 1915 and 1914 like shipments were delivered in three days and four hours to same party after leaving here. This year the bees were on the road from 8 to 16 days, and were dead, or nearly so, when delivered. The question is, Should John Doe pay me for bees I sent him, and be, John Doe, look to express company for value of bees not delivered alive? Or should I not look to John Doe for price of bees, and express company pay me? I refer you to my ad. in Gleanings. Fitzpatrick, Ala. W. D. Achord.

[An express company comes under the laws and is a common carrier. While it may receive goods, issuing a receipt which does not agree to land the article received at destination at any specific time, yet there is reason in all things, and the express companies, thru the operation and contracts with the railroads over which they operate, maintain published schedules.

Shipments are based a great many times on these schedules, expecting (aside from the acts of God), goods to reach destination at least within a reasonable number of hours of their schedule time.

From points, for instance, within the territory in which we are located, termed the central states, there is no point within the United States and a greater part of Canada that schedules do not show that shipments may be reached not to exceed seven days; schedules for the Pacific Coast in about five days, these figures allowing a little time for unavoidable misconnections. From points within the state of Alabama to any point in the territory of Ontario, Canada, allowing for above delays, excepting acts of God, shipments should be delivered in not to exceed five days.

Shipments from such points, especially in the case of perishable live stock or live bees, 8 to 16 days would be considered a basis for claim in the eyes of the law, excepting

causes for delay on account of the acts of God.

The fact that the receipt given by the express company or any common carrier does not specify any specific date of delivery does not relieve the carrier when its employees are grossly negligent in the handling of shipment, thus causing these delays. Usually the common carrier will settle claims of this nature where they have no good reason for such delays. They are wise to the fact that the courts would not sustain them.

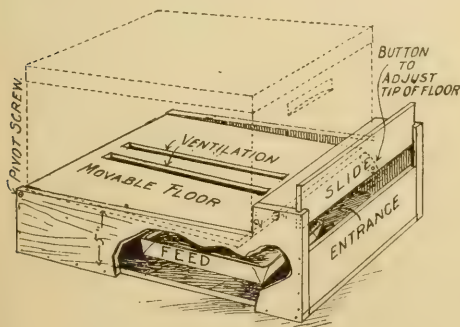
Generally speaking, we would consider four to ten days' time taken over and above what is termed a carrier's schedule is basis for claim and can be collected.

In the case above cited your customer would be the one to make the claim on the express company, and the customer pay you for the bees; but it is getting to be more and more the custom to make the claim in behalf of the customer because the shipper knows the procedure better.—Ed.]

A Double Hive-bottom.

For three years I have used fifty double bottom-boards of my own design, as shown in the illustration. At first I expected the bees would build combs between the two floors, but have had no trouble along this line. I made these principally for convenience in moving during hot weather for a buckwheat honey-flow, but I like them so well that I intend making two or three hundred more, altho I do not expect to do as much moving in the future as I have in the past.

The lower floor is solid, while the upper one, which is really the floor of the hive, is movable so that it can be shifted up or down as needed for ventilation, or, if required, it can be taken out altogether. There are two openings in this upper floor $\frac{3}{8}$ of an inch



wide, running from front to back. These may be covered with a strip of tin or roofing paper if desired. Thru these openings the bees can go down to a feeder shoved in between the two floors. They will take syrup from a feeder located in this bottom quite late in the fall.

In the swarming season I lower the upper floor in front so that the bees have about a 3-inch entrance. I also leave the two slots

even and pull the floor ahead so there is about a one-inch opening at the back besides. This gives abundance of ventilation, which goes a long way toward discouraging swarming.

The movable slide controls the size of the entrance outside the vestibule; and when moving I can replace this slide with a screen.

Smithville, Ont.

Lewis Minor.

Can a Colony Clean up American Foul Brood?

Have you ever heard of bees cleaning up American foul brood? A case has come to my attention that I should like to have your opinion on.

About three weeks ago I found two cases of American foul brood in a neighbor's apiary. One was bad and weak, so he killed it. The other he started to transfer, but noticed that the bees were cutting out some of the cells containing the diseased brood. He then let it go and called my attention to it. Sure enough, they had cut some out—usually destroying the walls connecting at least two adjoining cells. The colony is in fine condition, and the first heavy honey-flow is on.

There is no doubt as to its being American foul brood, tho I had a hard time convincing the owner of it after they had started cleaning up. Even now he wants an expert's opinion on it. My own opinion is that he took a splinter and mused up the diseased brood, enlarging or even breaking the cell. Could this account for it? or is it that they are very strong and making an attempt of their own?

Ramona, Cal., May 18. C. A. Quincey.

[While a vigorous strain of Italians will help clean up European foul brood, it is very seldom that they can handle American without assistance from the owner. Usually it is required to remove all infected material, either by removing the frames entirely or by cutting out pieces of the comb in the frames and substituting foundation instead. Occasionally a very powerful colony will clean out even American foul brood; but there is always danger that the disease will reappear again in a year or two. We always think it advisable, whenever the disease is found in any set of combs, to melt up all the combs even if only one or two cells appear. We have never known of a time yet when a strong colony cleaned out American foul brood, but what, if that colony was left long enough with the same set of combs, the disease would reappear again in one or two years hence, so it is well to err on the safe side.—Ed.]

European Foul Brood in San Diego Co., Cal.; Apicultural Nomenclature.

Many bees here in San Diego Co. are dying from European foul brood. I can't understand why one swarm of bees should be called a colony or the cells on foundation called "drawn." My bees build white cells on dark foundation. Am I too particular?

Potrero, Cal.

Geo. W. Riker.

[According to the latest dictionary, a colony is a collection of bees at rest, and keeping house in the hive. A swarm is a collection of bees that has issued from the parent colony, and is usually called a swarm as long as it is in the air or on a tree, and for a few days after it is hived. The old colony is called the parent colony, and the new one is called a swarm until it gets down to its regular housekeeping duties. Then it is called a colony.]

Cells that are built from foundation are often spoken of as "drawn." Where the foundation is very heavy, and there is a large amount of wax in the cell walls, the cells themselves may be drawn—that is, the bees use only the wax in the foundation. As a general rule, drawn comb from foundation is made up of wax taken from the foundation itself, and wax added thereto from other sources. If honey is coming in freely, the wax used to complete the cells may be the virgin scales taken from the under side of the wax-pockets of the bees themselves. These will be white like the paper on which this is printed. It will, therefore, transpire as in your case that the tops of the cells will be whiter than the foundation on which they are built.

Very often the bees take their tributes of wax from other combs. In that case the top of the cells will take on the color of the combs next to them. Comb-honey producers always have to take this into account; and this is one reason why the comb-honey supers are entirely separate and apart from the brood-nest containing darker combs. In the olden days, when we had wide frames containing sections, they were placed first in the brood-nest, and the cappings of those sections would often be as dark as the comb next to them. The solution of the problem, then, was to produce comb honey, not in the brood-nest, because of its discolorations from brood-combs, but in the super or upper story; and the practice is now all but universal.—Ed.]

A Good Place to Begin Advertising

My home is in Grand Rapids, Mich., but I spent the winter here at Hammond, a town of about 4000 inhabitants. I started out one morning to find some honey for table use. I went first to the largest grocery in town. On inquiry they said they were quite sure they had some. The clerk found a fruit-jar of honey—price 30 cts. for a pint-can. He took the top off to show up the goods; but, to his astonishment, he found it granulated. He said, "I don't know what ails it, or what makes it look that way; but if you want a can I think I can find one that is all right."

I told him the granulated honey didn't scare me. The next grocery had some honey in tall bottles holding about 4 oz. There was no comb honey at either place.

The next grocery had no extracted honey, but six one-pound sections piled one above

the other lying down flatwise. He said if I wanted that he would surprise me on the price of it, and make it 10 cts. each. It was dark and light mixed; had lain in the dust I don't know how long, and most of the honey had leaked out.

After all that has been said and done thru the bee-journals I didn't suppose there was a town of this size with practically no honey in sight.

E. S. Dart.

Hammond, La., Jan. 17.

Penny Wise and Pound Foolish to Let Comb Honey in Groceries Granulate.

In the discussion on increasing honey sales I do not think enough stress is put on the customer's loss thru buying candied honey. This year my honey was all sold by Feb. 1. I usually have it the whole year round. One of our family the last of March saw in a first-class grocery in Boston what seemed to be a fine section, and he purchased it for 25 cts. When he reached home it was candied solid, and moths had worked all around the wood. If I know anything about honey it must have been at least two years old. Such a sale as that queers the customer from buying any more honey for a long while.

A section of mine that I have just found has one side sealed and the other side full but not capped over. This was exposed to the New England winter with all its fluctuations without granulation. Any honey that I put in the stores I watch, and at the first symptom of granulation I exchange. You may say it would be impossible for a large producer to do this; but that does not affect the loss of customers by such sales. It is just the same as selling rotten fruit. A man who does that soon comes to his finish.

Woburn, Mass.

E. C. Newell.

\$575 in Premiums at the Michigan State Fair.

At the last meeting of the Michigan Beekeepers' Association a committee consisting of A. G. Woodman, E. D. Townsend, and Ira D. Bartlett, was appointed to draft rules and regulations to be used by the Michigan State Fair. As superintendent of the bee department I am pleased to state that the fair authorities have adopted the recommendation, and I am enclosing a copy for publication.

If the maximum amount of premiums is won by beekeepers it will amount to \$575 as against \$132 offered last year.

The fair authorities have ruled that no honey, wax, or supplies will be allowed to be sold prior to the last day of the fair. This rule has not been lived up to in the past, but will be strictly adhered to this year. There will be a further announcement made later, and all beekeepers in Michigan and adjoining states are urged to exhibit.

Detroit, Mich., May 2. E. B. Tyrrell.

[The complete recommendation and premium list appears in Convention Notices, this issue.—Ed.]

A. I. Root

OUR HOMES

Editor

Know ye not that your body is the temple of the Holy Ghost which is in you?—I. COR. 6:9.

Whatsoever a man soweth, that shall he also reap.—GAL. 6:7.

I the Lord thy God am a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me.—EX. 20:5.

Our older readers will remember that when GLEANINGS was first started I commenced a good-natured "war on Christian principles." Almost as soon as I became interested in bee culture somebody told me the only way to handle bees successfully was with smoke; and a little later somebody said that tobacco smoke was ever so much better than any other kind of smoke; and pretty soon a young man said he was going to learn to smoke so that he could always have it handy to use on bees. I protested then and there, and then went right to work to make a better bee-smoker than the world had ever used. I have told the story several times, but I will simply go over it briefly.

Well, I told this young man that if he would promise not to use tobacco I would make him a present of a bee-smoker. I think there were then about half a dozen men and boys present, and they put a joke up on me. Another young man said, "Can I have a smoker too on the same terms?"

I assented. Then finally the whole crowd took it up, and I replied something as follows:

"Yes, friends, each one of you may have a fifty-cent smoker free of charge if you will give up the use of tobacco and give me a promise that I can print in GLEANINGS that, when you use it again in any form, smoking or chewing, you will pay me back my fifty cents."

As a matter of course the names of those who made the pledge were printed in the journal, with an explanation. In due time my pledges came from all over the United States, not only from the men and boys, but from several ministers of the gospel, and from quite a few women. The names of all these people, amounting to quite a little over 1000, are given in our back numbers. Just a few paid back the fifty cents.

Now, altho all this happened about forty years ago, I hardly think there has been a year since that I have not had some stranger grasp my hand and tell me what he owed me for having given up the use of tobacco. When I visited H. A. March, away up in Puget Sound, I saw on the mantelpiece a bright new Simplicity smoker, and he informed me it was the one I gave him, years

before, for breaking off tobacco. He said he had never used the smoker, but kept it up there in plain sight as a daily reminder of what he owed his old friend A. I. Root. He told me the story something as follows:

"Mr. Root, when I got that smoker I was having a nervous breakdown. My hand shook so much that I could hardly write a letter. The doctors did not seem able to help me. When I saw what you said about tobacco I grasped the idea as a drowning man grasps at a straw. Now look here. Can you hold your hand any steadier than that?"

Then he held his hand up before my face. I replied, "To be sure, I cannot, for yours is as steady as a piece of cast iron."

Let us now come down to the present day. A month ago I received the following letter:

Dear Mr. Root:—Knowing how you feel on the subject of excessive use of tobacco, we are sending you a copy of the new book by Prof. Mac Levy, which we believe will be very interesting to you. Even if you are busy, we hope you will try to take a half-hour to look thru this volume. It is being endorsed by eminent educators and physicians. There is actually a need for such a volume, considering the tremendous amount of damage that is being done by tobacco at the present time.

New York, May 9.

F. K. THOMPSON,

Secretary Albion Society.

I found the book referred to beside the letter, and gave it a rather hasty going-over; but I get so many books to review besides looking over the great mass of agricultural periodicals, that it is next to impossible to read any book clear thru. After giving the book as much attention as I could find time for I answered the letter as follows:

Many thanks for the tobacco book. Thirty or forty years ago we sent out and gave away several hundred books discouraging the use of tobacco. With the present fight against strong drink, our Anti-saloon League had thought best to let up a little on tobacco, altho we are still waging war on cigarettes, giving away the book put out by Ford, Edison, and others.

By the way, I was a little surprised—perhaps I should say pained—to notice the author has little or nothing to say about the help that Christianity gives one to break off any bad habit. I did notice one suggestion—that if a man was going to succeed he was to stop swearing. That's well and good; but in view of the great work that Billy Sunday is doing in the way of reformation from strong drink and tobacco, should there not be a little more recognition of divine help?

I heartily endorse the instruction you give, and, by the way, will not such a course help greatly in overcoming any other bad habit—all sorts of "dope," for instance? May God bless and prosper you in the great undertaking.

By the way, just one thing more occurs to me: The matter came up some time ago as to whether our Ohio Experiment Station should teach our Ohio boys how to grow tobacco. I said: "God forbid;"

but Director Thorne, when the matter was presented to him, said he entirely agreed with me, but added something like this: "While three-fourths of my colleagues in the Experiment Station are users of tobacco, what is one to do?"

Medina, O., May 16.

A. I. ROOT.

Very soon after the above, came the following answer from the author of the book:

My dear Mr. Root:—I am personally answering your letter of the 16th, because it is so exceedingly interesting to me.

With reference to the fact that little is stated in my book, "Tobacco Habit Easily Conquered," about the help that Christianity gives in breaking off a bad habit, I will say that it was my natural desire to deal strongly with this subject, but I found it necessary to condense most of my thoughts in that line to the "Dictum of Dictums," which you will find on page 95 of my book. The publishers felt that it would be necessary for me to refrain from going into the religious element to any extent in the first edition of the volume. Their rule was based on the same theory that would probably hold you from speaking much about religion when writing an article upon bee culture. Do you see the point? Nevertheless, I know that you will agree that the trend of my work is invariably toward that which is good.

In training persons to apply themselves to the resources of nature to take care of themselves generally, and to observe the spirit of doing good to others, I am teaching Christianity. Do you not think so, Bro. Root?

Of course, you can quote from my book as much as you like. Accept this letter as full permission.

I wish I had an opportunity to talk with you about the real seriousness of the tobacco curse. The whole world is coming under its thralldom. The tobacco industries are piling up immense fortunes by poisoning people with nicotine. The appendix in my book is up-to-date, yet it gives but a small part of the great amount of information that is existent. American missionaries in China, for instance, write that in making laws against opium the Chinese have allowed cigarettes to invade their country. In consequence of this, cigarettes are being used by nearly every man, woman, and child to a far more serious extent than was ever done with opium. The effect upon the Chinese is even worse than was the case with opium. Here in America the sales of cigarettes have increased to an extent that seems incredible. During the first three months of this year the increase over the corresponding three months of 1915 was 1,484,000,000.

In about ten years there is bound to be a terrific reckoning; but in the meantime the tobacco companies are bribing newspapers and legislatures, and everything else, to enable them to promote the sale of tobacco. They have even gone so far as to try to prevent the sale of my little volume by threatening to remove their cigarette advertisements from newspapers that publish the advertisements of my book.

You ask me in your letter of the 16th whether my system for overcoming tobacco addiction could be made to apply to other kinds of narcotic drugs. The rules would need to be modified somewhat for either alcohol or for opium and its derivatives.

In the case of alcohol it is necessary to deal with the so-called "periodical" condition; and, moreover, it is necessary to consider the cases of those persons who are killing themselves with alcohol, but who do not have even the self-respect to wish to be freed from the slavery of it. You see their minds are poisoned. I claim that a large number of such persons can be weaned away from their desire for alcoholic drinks if certain rules are followed. I have been working upon a book for some time past, and will communicate with you about it later on.

I am very much interested in what you write about the Ohio Experiment Station teaching boys how to grow tobacco. I tell you, Bro. Root, the curse has such a strong hold upon the public that only an avalanche of some kind is likely to upset it.

I am working upon an ingeniously devised law which will compel physicians and other officials to report to the State Board of Health all cases of insanity, heart disease, hardening of the arteries, cancer, and other serious disorders wherein tobacco has been the main cause. I do not see how the opposition of the tobacco lobby can succeed when we undertake to get such a bill on the statute books of a state. Our explanation will be that, in view of the many arguments respecting the harmfulness as well as the harmlessness of tobacco, it will be manifestly fair for the state to obtain statistics of its own with a view to such future action as may be deemed advisable. The result of getting such a law upon the statute books would be to load the State Board of Health in each state with a vast amount of important facts proving that tobacco is a dangerous poison. After getting such facts on record in the various states, the next move would be to have stronger laws enacted. It is likely, also, that something could be done with the Federal government.

I wish you would kindly put me on your mailing-list, and I shall be glad to reciprocate with a view of co-operating with you more fully. There is some talk about putting my work in a cheaper form, so that it can be circulated inexpensively.

I shall be delighted to hear from you at your convenience.

New York, May 18.

M. MAC LEVY,

President Albion Society, Inc.

You may be sure that, on receipt of the above, I was delighted to find the following on page 95:

If you have a religious belief (and I sincerely hope you have) here is the most valuable Dictum of all:

Pray to God daily for whatever aid you may feel in need of, to help you in the simple task of following the rules in this book to a victory over the tobacco addiction.

That God will answer these prayers is certain.

When you are free from the awful thralldom—filled with the exuberance of good health, a clear mind, and the true joys of life—add a few words to your daily prayer that God shall show others the way to longer life and contentment, particularly that he shall stay our boys from ever acquiring the tobacco habit.

The above makes the book all right, and I take great pleasure in making other extracts from different pages as follows:

This book just "had to come." My conscience wouldn't allow me to put off writing it any longer.

Tobacco is used in five different forms—cigarette, snuff, chewing tobacco, pipe, and cigar. I rate their degree of harmfulness to the individual in the order named.

Without discussing the ultra-scientific reasons pro and con bearing on the fact, it is generally accepted that the average cigarette-user consumes more nicotine than any other tobacco addict. One who inhales the smoke is a deeper addict than one who doesn't, but both are "in the trenches."

A TALK TO THE BOY WHO SMOKES.

It was at the beach. A number of boys were sitting. They were having great fun.

Three of the boys, in a spirit of bravado, started

to swim to a point of land. It looked simple and easy. But they had been warned of danger and told not to be so foolish as to take such a risk—for Death had caught others there and was still lurking for new victims.

The boys, in their mistaken desire to be manly, and heedless of the danger, kept on. At a place where the sea appeared no rougher than elsewhere, the lads suddenly felt that they were losing control of their feet.

For the first time in their lives they encountered that danger known as an undertow. Experienced sea bathers know of it and they avoid the places where it is liable to exist. These lads, however, did not understand what was wrong. At first they fought to control themselves and to swim to the shore—only a few rods.

They were unable to hold against the terrible and mysterious foe. The undertow caught them and sucked them under the surface of the water, as if a horrible octopus had drawn them into its ugly maw.

Excited observers saw that something was amiss. Two strong swimmers jumped into a boat, pulled sturdily and attempted to save the lives of those boys. One of them was dragged from the water nearly drowned. He recovered afterward. *The other two lads were drowned.*

Think of the agony of the parents and friends! Two boys who were finding life full of good things and who were growing into fine manhood, became victims of the cruel enemy that was concealed beneath the innocent-looking surface of the sea. Two lives were thrown away. You will agree that the affair was horrible. *A tragedy without excuse.*

This brings me to the point where I can tell you about another danger which exists all around you. I mean the cigarette habit.

You learned it for the fun of the thing, probably in the spirit of "don't take a dare." You thought it would be manly to know how to smoke. You saw other boys doing it.

In the appendix to the book there is a large amount of matter in regard to cigarettes, and the effect of tobacco on the coming generations. I select only one of them. As you will notice, it bears on the point made in our last text.

As a matter of fact, the number of conceptions in smokers' families exceeded the number in the other class, but the loss by still births and miscarriages was twice as great—which fact is in line with Dr. Lichty's inductions from the United States census figures.

Additional tables of figures give the information that wives of tobacco users suffered, in excessive numbers, abscesses as well as abortions.

From the above you will notice that the one who deliberately decides to use tobacco not only impairs his own usefulness here in this world, but he bequeaths to his unborn children a handicap that may follow them more or less all their life.

I found a printed slip inside of the book which reads as follows:

TOBACCO HABIT.

The mother or wife who has a loved one addicted to smoking, chewing, or snuff-taking, will be delighted to know that a book has been published which should convince any man that his health and efficiency will be greatly improved, and his life lengthened, if he gives up the use of tobacco. This book is entitled "Tobacco Habit Easily Conquered." It tells how

to overcome the addiction, without drugs, quickly and pleasantly. Those interested should write to Albro Society, 181 Lexington Ave., New York. This volume is bound to bring happiness to many homes. It is a handsome book of 155 pages; price \$1.25.

In closing, let me mention just two or three illustrations from what I have seen of tobacco during the past forty years. My own father smoked until his health broke down so he was about to give up his business. Somebody told him to try giving up tobacco, and I am sorry to say the advice did not come from the family physician. Now, my father was quite stubborn and contrary; and when somebody suggested that he could not get along without his pipe even if he should try to, he showed his "Root spunk." But he did give it up, and in just a few weeks he began to flesh up and look happy, and the people joked him about growing young instead of growing old. He lived about twenty-five years after that breakdown. Once more:

Our family doctor, E. G. Hard, of Medina, gradually failed in health, and was finally confined to his bed. A council of able doctors, one or more from the great city of Cleveland, came to his bedside, but could not tell what ailed him. He was told he had but a few days to live. Not long afterward I met him on the street. Of course I started to see him out looking bright and fairly well. Before I could express my astonishment the doctor said something as follows:

"Mr. Root, I owe you an apology."

I was more perplexed than ever; then he added:

"You wonder to see me up and around, and of course you want to know what miracle brought me back from death's door. Well, the upshot of it all is I took the advice you have been giving me for years, and stopped one of my bad habits."

"Why, doctor," said I, "what 'bad habit' do you mean?"

"Yes, Mr. Root, the confession I have to make to you is that I smoked pretty much all the time while in bed. It was the only thing that gave me any relief from my pain. When the doctors failed to find out what the trouble was, it occurred to me that I might try giving up tobacco. I did so, and here I am."

"Why, doctor, do you mean to tell me it was the use of tobacco that dragged you down by slow degrees to death's door, as you call it?"

"Yes, Mr. Root, it was tobacco and nothing else."

The good doctor lived for several years after that.

Now, in order to be strictly truthful

something else must be added to the above. You would suppose, of course, after the above confession, and with renewed health and strength, the doctor would never touch tobacco again. The above is well known, or I would not publish it; but some time afterward a woman said that Dr. Hard was again smoking. I told her she must be mistaken—it could not be. When I overhauled the doctor he said he smoked only a little—only once in a while.

I mention this matter in order to illustrate how loath Satan is to lose his clutches when he once gets a man in his grasp. One more instance:

A prominent member of our church had brief periods of blindness. The doctors could not help him; but when he cut out tobacco all of those bad symptoms disappeared. He told about it in prayer-meeting, and gave it as a warning to the younger ones. Well, somebody told me that this man was again using tobacco, and he gave as an explanation that he smoked a little when he called to see his old father. He said it did his father much good to sit down and have a friendly smoke with him. Once more:

A certain druggist with whom I have been well acquainted pretty much all of my life was taken with nervous prostration. He was not able to do business nor anything else. In fact, it made his life a burden. His father-in-law, with whom I was also well acquainted, was a physician. Now consider how difficult it is for a physician to advise a patient to give up the use of tobacco when he himself is using it. But notwithstanding this, this doctor advised his son-in-law to give up cigars, or at least reduce the number, for he was then smoking at least 25 a day. I think he was in the habit of smoking more than he realized. With a bright and smiling face he came to me and told me about it. He knew how I had all my life been opposed to the use of tobacco. As soon as he stopped the use of cigars, all the trouble vanished; and altho many years have passed since then he is now strong and well.

You will notice in one of the extracts I have made, something about the cigarette habit. I do not think any dealer in Medina sells cigarettes; but the boys of our juvenile schools are getting them in some way. Perhaps that notice about getting the names of boys, page 442, will help to explain. Well, reader, how do you suppose these boys found a place out of sight to smoke cigarettes? They got a board loose on the end of the shed nearest the schoolhouse, and went into the horse-shed belonging to the Congregational church to do their smoking.

We found a lot of cigarette papers scattered all over in one corner, out of sight, and our good pastor surprised four schoolboys when they were smoking. Is the Great American Tobacco Co. really bigger than the United States, thus to defy and trample under foot not only our state laws but the laws of the nation? I think the above will give you some vivid illustrations of that beautiful Bible text, "Whatsoever a man soweth, that shall he also reap."

While the matter is up before us let us consider the following, which I clip from the *New York Times* for May 28, 1916:

SAYS GEN. F. D. GRANT WAS CANCER VICTIM; DR. ARBE BLAMES TOBACCO HABIT, INHERITED FROM FATHER, FOR FATAL THROAT AFFECTION; BOTH CONSTANT SMOKERS; SURGEON TELLS OF EXCESSIVE INDULGENCE AND SAYS HABIT IS TRANSMITTED TO OFFSPRING.

The real cause of the death of General Frederick Dent Grant at the Hotel Buckingham on April 11, 1912, was made public yesterday for the first time. He died of cancer of the throat superinduced by the excessive use of tobacco. His father, General Ulysses S. Grant, died from the same cause, and the malignant growth was attributed to the same agency.

The facts regarding the death of the younger Grant are contained in the following paragraph from an article by Dr. Robert Abbe, senior surgeon to St. Luke's hospital (who was with him when he died), on "The Legacy of the Intemperate Use of Tobacco," which appeared in yesterday's issue of *The Medical Record*:

"I could not help reminding him (a patient) that one of our great national heroes smoked incessantly, as every one knew, and suffered and died from the consequence of disease of his throat. His distinguished son, also heroic figure in our army, adopted the same habit, smoked equally incessantly, and suffered and died of the same terrible consequence. This is a heavy price to pay for the intemperate indulgence of such a throat-irritating and unnatural habit."

I close this paper on the tobacco habit with the following:

PROMOTION ONLY FOR THOSE WHO NEITHER
DRINK NOR SMOKE.

We clip the following from the *Sunday-school Times*:

SCHWAB'S REPLY.

..Let each man prove his own work. General Wheeler was talking with Mr. Schwab, head of the great steel combine, and we asked him, "Is it true that in these big corporations, other things being equal, the man is promoted who neither drinks nor smokes?" Mr. Schwab answered that that was the invariable rule in dealing with two or three hundred thousand employees under him. "When two men," he said, "Men equal in skill, preference is given to the abstainer and non-smoker.—From *The Christian Herald*. Sent by J. A. Clark, Greetland, Halifax, England.

The above is a surprise to me in two ways. First, that we have in our land an institution that employs the enormous number of between 200,000 and 300,000 men. Second, that our great factories, railroad companies, and other institutions have begun to comprehend not only that a drinking

man should not be promoted, but that the man who smokes is to be discredited as well. Now, I should like to know whether this means the man who smokes during working hours or the man who smokes only while on duty. I do not believe that there are any

at present among our two or three hundred employees who smoke during working hours; but it pains me to see how many *young* men as well as old knock the ashes out of their pipes when they come up to the office door to mark their time.

HIGH-PRESSURE GARDENING

HAND CULTIVATORS—SOMETHING NEW.

When I spoke about hand cultivators on page 505, June 15, I had not noticed the advertisement in our issue for May 1, page 13 of the advertising department, of the Barker machine. I humbly beg pardon, not only of the manufacturers of the machine but of our readers as well, for failing to scan *our own* advertising pages a little more closely. I have now been using one of the little Barker machines for three or four days, and it almost seems to me that this is going to bring about a revolution in gardening without the use of horse power. Not only here in the North, but clear down in Florida there are thousands of people who hesitate about going to the expense of a horse for market gardening.

A year ago I spoke of the need of a gas or electric motor to supply power, especially for the use of young boys or old men like myself. The advertisement I have referred to makes this statement: "A boy with a Barker beats ten men with hoes." This sounds pretty strong; but where your garden is free from stones, clods, and trash, a smart boy might come pretty near the above. The picture of the machine explains it. Those ten steel blades chop up the weeds in advance of the steel scuffle-hoe that follows. Where the ground is just right, say just after a rain, even here in our Medina stubborn clay soil you can run the machine as fast as you can walk; and the ground looks, after the machine has gone over it, almost as if it had been passed thru a sieve.

Another very important matter, you can run this little machine closer to all sorts of stuff, say that which is just coming up, or larger, than any other tool I ever got hold of. Most cultivators will throw chunks of dirt on the plants, perhaps knock them over, and, if a rain comes shortly after, they are very much injured. This tool can be tipped so as to run close to the plants without doing them any injury or disturbing the roots, and at the same time cut off or chop up every weed. It also knocks the dirt from the roots of the weed so there is but little tendency for it to take root and start again.

We are often told that the weeds should be killed before they come to daylight—that is, before they have time to start and get above ground. And this is very good instruction. But what are you going to do when it rains as it has been doing here in Medina so far this year (as well as last), so it is only now and then you can get on the ground with either plow or cultivator? After the weeds once get up, say two or three inches high, the only remedy I have ever known is a sharp hoe. But this little machine beats a hoe with a vengeance. But you will have trouble if your ground is stony, especially where there are stones about the size of a hen's egg. They will get between the two blades of the scuffle-hoe, and then the machine will stop suddenly. Cornstalk stubble that was not plowed under, or the roots of docks, etc., also make trouble.

Now, I think I have made an improvement in the use of the machine already—at least the manufacturers of the machine have not mentioned it so far as I know. I was so anxious to try it here in our garden that I started out before the garden was sufficiently dry. The consequence was, the steel blades and the iron wheels that hold them were soon covered with clay that dried on; and our clay is of such a tenacious nature that when it dries on anything one will almost need a hammer to make it let go. After cleaning the blades and other parts a few times so they would do good work I got the oil-can and greased the thing all over. Then I rubbed off the oil and mud until the metals were clean, and gave it another coat of oil. Since then the machine has kept clear from the accumulation of clay very much better, and I think the blades will ultimately get scoured bright and smooth.

There are three sizes of the machine—6, 8½, and 11 inches. Mine is the 8½ size. Where your garden stuff is planted wide enough apart to permit using a horse, you want to make about three trips in each row. First, go clear up to the plants on the right side and then on the left, and then down through the middle; but if you can go as fast as you can walk comfortably, it does

not take very long to put your whole ground in beautiful condition. If your corn and other stuff is planted in hills, instead of drills, there is little that needs to be done with a hoe. Perhaps I might add that I paid \$6.20 for my machine, the same as other people pay, so that you may not imagine that I got anything free for having given the machine this write-up. I think it is going to prove a boon indeed, especially to old people like myself who work in the garden.

"IN THE SWEAT OF THY FACE SHALT THOU EAT BREAD."

Last, but by no means least, let me say that for some time back I felt that my strength was gradually failing—not particularly when I was at work in the garden, but when I undertook to read the letters piled up on my desk, and especially to read as I ought to read the books and papers and clippings that the many kind friends are sending to me. I tried to work in the garden, but some way my strength did not seem to hold out. In fact, running the cultivator I have previously mentioned, especially when the ground was rather wet, seemed to be almost too much hard work. After I got this new machine I have been describing I was so much pleased with its workings that I did not stop, even when I *was* tired. Rain was coming again, and I wanted to do all possible before it was again wet. Pretty soon I was in a profuse perspiration. In fact, the sweat was dripping from the end of my nose. I hung my cap on a post and went up and down the rows bareheaded; and pretty soon I struck what the boys call the "second wind." Our older readers will remember my mention of it in speaking of climbing Mount Wilson, in California. That text in the Bible, "He paweth in the valley and rejoiceth in his strength," occurred to me. Instead of becoming tired out I began to draw in great breaths of the beautiful fresh air, and did not feel tired a bit. I nearly finished the whole garden before dinnertime. I ate a hearty dinner, and then took a good long nap, and then was ready for more "gardening." The next day the muscles of my arms were sore; but I took another "dose" of the new cultivator until I was once more dripping with sweat; and now my aches and pains are all gone, and I feel as if I were getting a new lease of life. In fact, I had been praying over the matter of my health, and my prayer was answered.

By the way, I think I should mention right here that a few weeks ago I was thoroughly examined by the medical examiner belonging to a life-insurance company. You see it is quite "interesting" for the life-

insurance companies to have an old man like myself live as long as possible, and, accordingly, he makes examinations without any fees on my part. He gave me some disinterested advice. Well, after I had had a good long talk with this up-to-date doctor he said something as follows:

"Mr. Root, about all the fault I can find with you is that you are 76 years old."

After the doctor and I had had this good long "visit" I happened to mention that I was conducting a health department in our journal; and later on I submitted to him the article on page 1001, Dec. 1, 1915, and I asked him to give his opinion in regard to the soundness of my teaching. He replied later that the best evidence of the soundness of my teachings is the fact that I have lived to be 76 and still keep my strength and the use of my faculties to such an unusual degree.

Well, now, friends, here is the moral to my long story. I was suffering because I had not been getting *sufficient* exercise so as to sweat profusely thru the pores of my body. Of course the enthusiasm awakened by the use of that new cultivator had something to do with it. Several times I urged my good friend T. B. Terry to take even *more* exercise every day right out in the open air, winter and summer; and in accordance with the latter I urged him to take a trip down to Florida, where he could be outdoors in his shirtsleeves every day in the year. The last time I talked with him he claimed that the air in his room (with his ventilating and "humidifying" arrangements) during the wintertime was as pure as it was outdoors. But I did not quite agree with him.

As the insurance doctor bade me goodby he said something like this:

"Mr. Root, if a kind Providence should permit me to live to be 76 years old, and to retain my bodily strength and the use of my faculties as you seem to have, I shall be devoutly thankful."

Just one thing more:

The doctor mentioned asked me about my meals. I told him that for the last five years or more my supper was grapefruit and apples, with a little cheese. He replied very emphatically, "That is just the *very best thing for you*; and if a lot of other old men would stop eating three square meals a day, especially after they give up hard work, a great lot of them would live longer, and enjoy life far better."

IRISH POTATOES 70 CENTS A PECK.

Here we are again, friends, this last week in June, with potatoes at 70 cents a peck, or \$2.80 a bushel. I have for several sum-

mers back urged that Irish potatoes could be grown by starting them under glass here in the North at a big profit; and several times the reply has been, "Oh! this is an exceptional season." But for several years there has been a period between old potatoes and new ones when the retail price on the market was from 60 to 75 cents a peck. I have not grown them under glass here in Ohio, because we do not reach here until about May 1.

I spoke last season about the Early Six Weeks potato, stating that it was free from seab, and more free from blight than any of our other varieties. We not only had beautiful Six Weeks potatoes all thru the summer and fall, but I shipped a barrel down to Florida, and we had them to use pretty much all winter. For some reason they did not sprout so I could plant them until so late that only a few were fit to dig when we left there the middle of April. At the end of a letter to my "long-time friend" A. T. Cook, of Hyde Park, N. Y., I wrote as follows:

I am greatly surprised to know that your season is so much ahead of ours here in Ohio. I have not seen a potato here in our part of the state above ground as yet. I planted some Early Six Weeks nearly two weeks ago, but not a potato up yet.

Medina, O., May 25.

A. I. Root.

Below is his reply:

MY EARLY SIX WEEKS POTATOES.

I commenced using them on my table June 8. They are super-delicious. I dug some today, June 17. They are nice and big. Two weighed 12 ounces.

This has been one of the latest, wettest, and most backward seasons I have ever seen, or the potatoes would have been ready to use several weeks earlier. They were planted in the open ground about April 8. I think there never was another potato of such high table quality as the true Early Six Weeks, and they are the best keepers I ever grew.

Hyde Park, N. Y., June 17.

A. T. Cook.

I quite agree with what he says about the Six Weeks being not only a high quality but a splendid keeper. Hyde Park, N. Y., is further east and north than Medina; but by taking pains this Six Weeks potato could easily be grown in Ohio during an average season so as to be put on the market in June. As proof of this, Mrs. Root says a woman in our neighborhood told her about the middle of June that she had early potatoes in bloom planted in the open ground outdoors. Very much can be accomplished in getting early potatoes by having a sandy or gravelly soil sloping to the south, fully exposed to the sun, but sheltered from the west and northwest chilling winds.

A GLIMPSE OF OUR FLORIDA GARDEN.

I think I have already explained that I wrote to our Florida Experiment Station,

asking what crop they would advise during the summer time after taking off potatoes in the spring. Here in the North, we should use clover; but as it does not seem to stand the heat and heavy rains of Florida summers, Prof. Rolfs advised corn and velvet beans, and I took pains to inoculate the beans with the nitrogen bacteria. Below is a brief report of how my experiment is turning out.

Your garden looks fine. I have not seen anything else in Florida to equal it, and nothing in the North to excel it. The ears of corn are beyond my reach, and the velvet beans are immense.

Bradentown, Fla., June 2. C. L. HARRISON.

FLORIDA REAL-ESTATE SPECULATORS — TWO SIDES TO THE MATTER.

Both winter and summer I am having a lot of inquiries in regard to investing in real estate in Florida; and my invariable answer is that no one should think of investing a copper in Florida lands without making a trip and looking things over and getting facts from old residents in the vicinity. Notwithstanding, thousands upon thousands of dollars are being invested in lands which the purchaser has never seen, and many times in lands they never will see; and I am glad to note that most real-estate agents nowadays request people to come and look over the premises before buying. I also have frequent inquiries in regard to certain real-estate companies, especially if they are located in Manatee Co., where our Florida home is. Well, I almost always turn these letters over to my neighbor, E. B. Rood, who deals in real estate aside from his business of truck gardening. One question comes up often, like this:

"Mr. Root, can you find out if these men are responsible? and will they do all they agree to do?"

Now, it gladdens my heart to have Mr. Rood reply frequently something as follows:

"Yes, Mr. Root, I know these parties, or at least I know something about them; and my opinion is that they will do what they agree to do."

With the above preface let me report to you an incident. Some time last winter, just after Mrs. Root and I had finished our dinner, a man arrived in an automobile, taking out with him a couple of heavy valises. He said he had read our journal for years, had purchased supplies of the A. I. Root Co., and had long felt that it would be a great pleasure to meet A. I. Root face to face, etc. Before taking him over the ground, as I usually do, I said I supposed of course he had been to dinner. When he

admitted that he had not, I asked Mrs. Root to prepare something hurriedly while I showed him the garden and the chickens. While he was eating, among other things I asked him how much they charged for bringing him in an auto down to our place. He replied, "Not anything. I told them I wanted to purchase a little piece of land in your vicinity, and they said there would be no charge."

When I expressed some surprise he stopped his dinner to reach his hand in his side pocket, and said:

"Why, look here, Mr. Root; I got a free pass from Tampa. Here are passes over this new east and west railroad."

When I expressed further surprise, and asked him why they gave him this free transportation, he said he was talking of buying some land of a certain company out on the new road. Just here I interposed something as follows:

"Why, my good friend, if I understand you, you have got these passes by representing that you wish or intend to purchase of a company out on this new road, and yet you tell me the garage people sent you down here free, with the understanding that you wanted to buy in this neighborhood."

He stopped eating for a minute, evidently seeing he was caught; but very soon he recovered and replied:

"Mr. Root, this is a free country; and a man can purchase wherever he pleases."

The above seemed to be his version of "personal liberty"—just about the kind of personal liberty the liquor people so constantly harp on.

While the man was finishing his dinner it suddenly occurred to me that he would be going over to neighbor Rood's and getting Mr. Rood to show him the real estate around our neighborhood with *his* automobile. I asked to be excused for a moment to look after some business. The business was to slip over to Mr. Rood's and inform him in regard to the "complexion" of our visitor. Mr. Rood said he had had some experience with that sort of chap, and that I might be sure he would not waste time on him.

After this man had finished I told him to leave his valises with us while he went over to talk with Mr. Rood about the property in our vicinity, and then I went on with my work. Pretty soon Mrs. Root came and told me our new visitor had started on foot back to town with his two heavy valises, and she wanted me to hurry up and overtake him with the auto because of his heavy load. You may think, friends, I was a little unchristianlike when I said, "No, let him travel." She further informed me that he

came in somewhat excited and demanded his valises. When she told him I had put them out in the auto-house he rushed out and put off on foot as described.

"Did he not thank you for the pains you took to get him up his dinner?"

"Not a word of thanks; and he seemed put out because you had set his stuff out in the auto-house."

I do not know but he expected his old traps would be deposited in our best room, and that he would be invited to stay a week, making our home his headquarters. If so, he made a mistake.

I have mentioned the above because I have for some time felt sure the real-estate men—at least many of them—have been unduly censured. I know of two or three cases where they have paid the money back because a customer became discouraged or got the blues, when they had been a good deal out of pocket besides the loss of time. Of course the above is no excuse for unreliable make-believe real-estate agencies, etc.

"GOD'S KINGDOM COMING."

We clip the following from the *Cleveland Plain Dealer*:

DULUTH VOTES DRY; CITY GIVES PROHIBITION 400 MAJORITY; 15,000 BALLOTTED.

DULUTH, Minn., June 20.—Complete returns on yesterday's wet and dry vote in Duluth show about 400 majority for the drys, out of a total vote of approximately 15,000.

Under the terms of the initiative ordinance, thus adopted, no more saloon licenses will be granted in this city to run after July 1, 1917. Those now existing will be canceled as they expire.

Duluth is said to be the largest city to vote dry by local option.

LEPROSY A MENACE, EVEN IN THE UNITED STATES.

The following is clipped from the *Daily Commercial* of Three Rivers, Mich.:

Recent investigations show that in South America the conditions are becoming alarming. Absolutely no precaution is taken. Brazil alone has 750,000 cases.

In one village of 1500, one-third of the population were lepers. In this particular village every male leper able to work was employed at making cigars, most of which were shipped to the United States.

It is estimated that there are between five hundred and one thousand cases in the United States. As only eighteen states have laws requiring cases of leprosy to be reported it is hard to get statistics. At present there are two state asylums, one in Massachusetts with ten inmates, and one in Louisiana with one hundred.

Please note what is said in the above about cigars from South America. How about "cutting out" *all cigars*? What about the class of people who usually make cigars?

POULTRY DEPARTMENT

A BACKYARDER'S DREAM.

Several years ago the farmer who had been shipping us eggs wrote to say his hens were on a strike, and he could not send us any more eggs until spring. This was to us an annoying state of affairs, for the bacon-and-eggs-for-breakfast habit was firmly fixed in our home. We held a council of war—wife and I—and resolved to produce our own eggs, tho at that time we knew about as much about hens as the average beekeeper does of integral calculus or the Sanskrit language.

I knew how to incubate bacteria, and could care for chicken pox in the children, so why could I not learn the ins and outs of hens? Then, too, I am always spoiling to be making something with tools and working with my hands at some outdoor task. This is my gymnasium work, and it pays me so well in health benefit that I could well afford to lose money in my outdoor hobbies. Of course, as wife says, my hands do not always look as nice and feel as soft as a doctor's should, perhaps, but I am not of the soft-handed class; and unless I work physically I am not happy or well.

The henhouse was built—a lean-to at the side of my garage, 9 by 18 feet, with a large lot behind for a range. A part of my garden lot has trees; and about these a space of 30 by 70 feet was fenced for the young stock.

My original flock was 12 hens and two cocks bought from a neighbor at one dollar each; a choice strain of White Wyandottes, the hens from a well-known breeder of the fowl who wins many prizes in the shows, and the cocks from a distant breeder famous in poultry circles as a prize-taker with this breed of hens. I considered it a good bargain, and offered to me only because my neighbor had sold his place and had to dispose of his birds because of no place to keep them.

I bought two incubators, and made some fireless brooders. We began hatching early in order to learn the work and be prepared for failures. I sent also for several settings of eggs from well-known concerns offering this breed, hoping to mix in the best blood I could find in making my stock as strong and nearly right as possible.

I will not detail the various experiments and costly mistakes we made the first year. I will not tell how we tried Runner ducks and White Leghorns; how the rats killed some of our flocks, or about the several troubles we had with white diarrhea, sore eyes, etc. It would make too long a story.

The book-keeping department of the enterprise was carefully attended to, and the end of the first year showed that the hens had paid for their own feed, paid for the plant, and we went into winter quarters with a flock of 120 fine birds, carefully selected from some 400 that were hatched.

The hens and pullets were again culled down to about 60 by selling all not laying by the first of January. This has been my rule for the several years I have conducted the hen-plant on our back yard. I have culled, first, for shape and appearance, health, vigor, etc.; and, second, for winter-laying tendency.

The second year, I discarded the smaller indoor fireless brooders for a colony brooder built in the large sunny room of our basement where the furnace keeps the temperature at 70, and the heater run by natural gas does the rest of the heating. This eliminates the many units. I have, since this plan was used, one unit, except at breeding time, for the grown stock and one unit for the young chicks. Such a plan greatly reduces the time required for the work.

The second year the books showed a profit of \$157.50, and we went into winter with a few more than 100 birds.

As soon as people knew of what fine success I was having with this strain of White Wyandottes many wanted settings of eggs. We also sold a good many day-old chicks locally, tho making no effort to sell by mail. We never tried for show prizes, merely striving to build up a strain of winter layers that any backyarder might establish a paying plant right at home and have plenty of eggs when they are hard to find of good quality, and in price from 40 to 60 cents a dozen.

The third year the books showed the net to be over \$350, besides we had built another henhouse 16 by 18 feet at the rear of the garage. The buildings are made of tile, and are warm, well ventilated, and dry. I feed mostly commercial "scratch" and dry mash of bran, corn meal, and meat scrap, with plenty of green stuff, using in winter sprouted oats, beets, small potatoes, and cull apples. I am near large greenhouses, and easily get lettuce, cabbage, and celery scrap for the labor of gathering it.

The new house will enable us to run a 200-hen plant; and with a little advertising effort, and still further care in breeding this strain for winter laying, I feel sure that from this on we may easily make \$500 a year from the hobby—such as we call it—that was started somewhat in spite because a farmer failed us in supplying eggs. Hens will pay in winter, and I have proved this. I admit it may take years to breed the flock to a winter-laying status, and I confess one must give them intelligent care as to feed, warmth, exercise, etc.

Any back yard with a flock of fifty hens, attended as I have cared for mine, can from the eggs and meat buy all the feed, and have a profit that will go a long way toward reducing the cost of living. I can show any one willing to work a little with the hands, and use a little of that so-called gumption, how it may be done.

They may talk about the American eagle, or the birds of paradise, the beautiful pheasant, the strutting turkey—of the peacock with his wonderful tail; but the real bird—the one that gets my admiration and respect—is the faithful winter-laying White Wyandotte hen. Her song is sweeter to me than any fabled nightingale, and her fruit—she is known by her fruit.

So it was not a dream, after all.

Youngstown, O.

DE. C. E. BLANCHARD.

There are two expressions in the above letter that hit my case exactly. 1. "I am always spoiling to be making something with tools, and working with my hands at some outdoor task." Again, "Unless I work physically I am not happy or well." In regard to the soft hands, and always looking and feeling nice, it is not many days since Mrs. Root gave me a regular overhauling because of my dirty hands. She said I would have to get a good stiff brush and some soap, and get the black dirt out from around my finger-nails, etc. I think I did something of the kind; but before the day was over I got hold of a choice plant that had to be set out carefully; and our best soil, even in Florida (that is, where I have doctored it year after year so as to get it in shape to make things grow) gets in and around the finger-nails when you get right down into the dirt, and so it takes a great deal of scrubbing to get it out. A

good deal has been said about chickens and gardens in the saving of expense; but where anybody goes at it—man, woman, or child—in the way the good doctor tells about in the above, it will surely pay in the way of better health, better eggs, and a profit besides.

THEY LAID IN SPITE OF THE SWEET POTATOES.

In the Poultry Department, March 1, you mention sweet potatoes as being the cause of the hens suspending their laying. I have fed my hens sweet potatoes, boiled and mixed with bran, for their winter breakfast for some years, and had eggs to sell all winter. Of course I never fed them all they would eat. Some folks will tell you that to feed your hens peas will stop their laying; yet my daughter fed hers nothing but peas this past winter, and had just as many eggs. Of course they had free range.

MRS. AUGUSTA TREMPER.

Linden, Texas.

THE RECENT MILK WAR IN CHICAGO, AND SOME OTHER THINGS.

I clip the following from the *Rural New-Yorker*:

The question confronts us "What are we going to do to avoid such conflicts in the future?" That we are held in better repute than heretofore is sure; but whether we can get a living price for our milk is the question. All over this country, milk is the one food that is sold below its real value as food. Compare it with any food you please, and it is, considering its food value, sold cheaper. We have left the marketing of our milk to others, only to find that its food value is not known, and that not a dollar has been spent by these distributors to inform the people of the vital force contained in this, almost the only uncooked food we have today. That the food elements of milk have vital qualities in the maintenance of life and growth is beyond question, and yet the city of Chicago consumes \$20 per capita of liquors to \$5.75 of milk. Our milk merchants, who should have been telling this story, have failed, and we find our market less than one-third what it should be. They have had but one thought, and that has been to fatten on profit. They have had invested less than \$25,000,000 in their plants, and have employed but 4000 men to do their work, while we have had more than \$250,000,000 invested in production, and employed 40,000 to make the milk and feed. They have sold the milk in Chicago at eight cents per quart and five cents per pint, and paid us on an average for the year three cents per quart. Can we longer stand such service, or must we undertake the marketing of our product?

There are three points made in the above than I wish to consider. "Almost the only uncooked food we have today." I did not think of it till just now; but milk certainly is, as a rule, uncooked food, and I suppose our readers all know there has been first and last a good deal of talk and perhaps a good deal of truth in the importance of making one's diet, or at least to a great extent, on uncooked food. At least one good-sized book, and perhaps several books, have been devoted to the matter. Well, honey is also, as a rule, uncooked food, and both milk and honey have the sanction of

Holy Writ. "Butter and honey shall he eat, that he may know to refuse the evil, and choose the good."

The second point made in the above is that beer and other liquors cost on an average \$20 per capita in Chicago, while milk costs only \$5.75. May God help Chicago if this is indeed true; and I think we may rejoice to know that just now milk is rapidly taking the place of beer. Great factories and railroad companies are taking measures to have their employees drink milk instead of beer.

Last, but not least, we are told that in Chicago, where the consumer pays from 8 to 10 cents per quart, the producers, the farming people, get now, or have been getting, only *three cents* per quart. If this recent war should end in giving the hard-working farmer (who works, not only eight hours a day, but close on to *twice* that much) more than he is now getting, we shall all rejoice. The men, women, and children who devote their lives to the production of pure, clean, wholesome food for mankind should have good pay; and anything that can be done to shorten the distance and the difference in prices between producer and consumer is real *missionary* work. We expect that staple articles of food are sold, as a rule, on a very small margin of profit. Of course, it costs something to handle milk, keep it pure and clean and unadulterated, and handle it quickly. But I am sure there is no need of a profit on it of 200 or 300 per cent.

In our Florida home we pay 10 cents a quart, and the money goes directly to the producer. He gets the whole of the 10 cents. He not only gives us the nicest Jersey milk I ever tasted, but he gives such good measure we would willingly pay him more than 10 cents if he would take it. Perhaps I might mention the fact that this good neighbor is E. B. Rood, the strawberry man. He keeps a fine grade of Jerseys which furnish manure for his strawberry-beds, and enables him to furnish his customers both milk and strawberries. He used to furnish *honey* also; but he has now turned the honey business over to another good neighbor, Mr. A. E. Ault.

THOSE PICTURES ON PAGES 485, 486, 487.

Perhaps some of the friends who read GLEANINGS may like to know "who is who" in the pictures mentioned above. Well, it is the family belonging to "Blue Eyes." Mr. Arthur L. Boyden, her husband, is coming from the express office, and their three children, Ralph, Helen, and Wynne, are accompanying him. On page 487 we get a glimpse also of Allen I. Root, Ernest's youngest—the "A. I. R." of the future, kind Providence permitting. I might remark that Wynne Boyden, sixteen years old, and a little taller than his father, is now teaching his grandpa how to run his new automobile.—A. I. R.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees...	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outwards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

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QUEENS!

In the Beginning is where Quality starts

Our breeding stocks, our methods of breeding cannot be surpassed anywhere

If you want to know who we are, read "How to Produce Extracted Honey," also "Modern Queen-rearing," both of which we wrote for The A. I. Root Co., while we were their head apiarist some 12 years ago. Untested queens, \$1.00; tested, \$2.00. Other prices on request.

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ITALIAN QUEENS

Three-banded

From June 1 to November 1

Only 75 cts. each; 6, \$4.00; 12, \$7.50; tested, \$1.00; 6, \$5.00; 12, \$9.00; of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Send for my free circular and price list.

JOHN G. MILLER, CORPUS CHRISTI, TEXAS
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BEE SUPPLIES Send your name for new 1916 catalog.
Dept. T. CLEMONS BEE SUPPLY CO.,
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Forehand's Italian Queens

Gentle, good honey-gatherers, bred for business. Their mothers were imported — the best to be had. If you buy once you will buy always. Just look at these prices. Where can you find better?

Untested, . . . July to Oct. 1, one, \$0.50 up to 25.
Select Untested, " " 1, .75; 6, 4.25; 12, 8.00
Tested, " " 1, 1.25; 6, 7.00; 12, 13.00
Select tested, " " 1, 2.00; 6, 11.00; 12, 20.00

If queens are wanted in large quantities send for prices.

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.

All orders filled at once.

L. L. Forehand, Fort Deposit, Ala.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

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Safe arrival and satisfaction guaranteed.

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Queen-breeder

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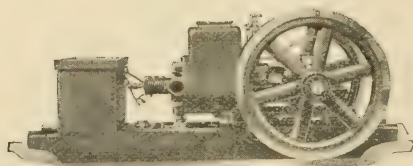
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1 1/2 H. P. Gasoline Engine

A faithful worker and first assistant to the Bee-keeper. Will operate extractor, pump, grindstone, washing machine, etc.

The A. I. Root Co. endorse this engine. Ask them.

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IN WEST VIRGINIA?—The large supply-house nearest to most beekeepers in this state is at Zanesville.

IN WESTERN PENNSYLVANIA? — You are a next-door neighbor.

ELSEWHERE?—Zanesville service will yet commend itself to you as being the best obtainable.

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Distributor for the largest bee-supply factory in the world

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To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged

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in the

Guide to Nature

Send twenty-five cents for a four-months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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WANTED.—To buy a quantity of dark or amber baking honey. State price, and source gathered from.

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WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.
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FOR SALE.—A full line of Root's goods at Root's prices.

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HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

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Good second-hand 60-lb. cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash.

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ARTHUR RATTRAY, Almont, Mich.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

Nine-frame one-story hives, full sheets foundation, \$1.00; supers, drawn comb, 50 cts.

MRS. R. SNYDER, Linderman Ave., Kingston, N. Y.

FOR SALE.—Several hundred eight-frame standard supers for 4¼ x 1½ sections, cheap. THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

Five hundred sixty-pound cans, good condition, at five cents each, F. O. B. Pittsburgh. Smallest shipment fifty. Payable upon arrival.

TWEED & BOTSFORD, Pittsburgh, Pa.

The Stanley improved cylinder cage with queen-cells, postpaid, 6 cts. each, or \$5.00 per 100. Write me for queen-breeders' supplies. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash, 27 trade. J. F. ARCHDEKIN, Bordonville, La.

NEW HIVE.—Tested out three years. More honey produced. No heavy lifting. Non-swarming and robber-proof. Winters properly without labor or expense. Present equipment easily changed to it. Other advantages. Send for particulars.

WM. F. MCCREADY, Box 1, Estero, Lee Co., Fla.

FOR SALE.—Bee supply and honey business. Established more than a quarter of a century. Splendid location. Rare opportunity for the right man. Big money-maker. For information, address J. W. HARRINGTON, 1506 Merchants Bank Bldg., Indianapolis, Ind.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea! Send data. Advice and two wonderful Guide Books free. Highest reference.

E. E. VROOMAN & Co., 834 F., Washington, D. C.

WANTS AND EXCHANGES

WANTED.—At once, 4 or 6 frame automatic extractor; must be in good condition, and price reasonable.

FRANK WOODRUFF, Rt. 1, Powell, Pa.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—A 36-acre ranch, free irrigation water, five-room house, honey-house, and out-buildings, all practically new; good home orchard; 200 to 500 colonies of bees; two good locations. Time on part, for Sept. 15th delivery.

J. G. PUETT, Collbran, Col.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Gen. Colonization Agent A. T. & S. F. Ry., 1934 R'y Exchange, Chicago.

SOUTHERN FARMS ARE PROFITABLE. Get our illustrated lists of good farms in Virginia, North Carolina, W. Va., Md., and Ohio, at \$15 per acre and up. Excellent little farms in colony of Little Planters, Shenandoah Valley, at \$250 and up, complete on easy terms. Fine climate, good markets; best general farming, fruit, poultry, trucking, and livestock country on earth. Write for full information now. F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 N. & W. Ry. Bldg., Roanoke, Va.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 DeWolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

FOR SALE.—Untested golden Italian queens, 60 cts.
J. F. MICHAEL, Winchester, Ind.

Rhode Island Northern-bred Italian queens, \$1.
Circular. O. E. TULIP, Arlington, R. I.

Try my MAPLEWOOD queens. Sure to please. One dollar each. GEORGE H. REA, Reynoldsville, Pa.

Fine three-banded Italian queens. Circular and price list free.
J. L. LEATH, Corinth, Miss.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

QUEENS THAT COUNT.—See our adv. elsewhere in this issue.
GEO. W. PHILLIPS, Lebanon, Ohio.

Italian untested queens, \$1 each; \$5 for 6; \$9 per dozen.
DOOLITTLE & CLARK, Marietta, N. Y.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing.
A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Northern-bred Italian queens of the E. E. Mott strain. July, 75 cts. Send for free list.
EARL W. MOTT, Glenwood, Mich.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed.
H. K. TURNER, Rt. 4, Greenville, Ala.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.
EDITH M. PHELPS, Binghamton, N. Y. East End.

FOR SALE.—200 strong colonies with extracting equipment; unlimited range; continuous honey-flow. No disease.
J. O. HALLMAN, Unadilla, Ga.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75.
MISS BIRDIE CULDERSON, Rt. 2, Silver City, N. C.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.
A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—1 lb. 3-band Italian bees, \$1.00; untested queen, 65 cts.; tested, \$1.00; select tested, \$1.25. Rosedale Apiaries.
J. B. MARSHALL & SON, Big Bend, La.

Golden and three-banded Italians; 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb.
D. L. DUTCHER, Bennington, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Extra select untested golden and three-banded Italian queens, 75 cts. each; 6 for \$4.00; virgins, 30 cts. each. Satisfaction guaranteed.
G. H. MERRILL, Pickens, S. C.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randeman, N. C.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per dozen; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The genuine "quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowlstown, Tenn.

Large well-bred three-band Italian queens by return mail; one, \$1.65; 12, \$9.00; guaranteed purely mated select tested, \$1.50; full colonies; 10-fr., \$8.00; 8-frame, \$6.00, queen included.
S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 338J, Rt. 6, San Jose, Cal.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.
G. W. MOON, 1904 Park Ave., Little Rock, Ark.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Fine Italian queens, three-banded; best that can be produced. Safe arrival and satisfaction guaranteed. Untested, 60 cts. each; 12, \$7.20; tested, \$1.00 each.
J. F. ARCHDEKIN, Bordlonville, La.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. 3-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$10.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

Are you troubled with Paralysis or Isle of Wight disease? Our English friends write me that my strain of Italians are resistant to the Isle of Wight disease. Also satisfactory honey-producers to the foremost beekeepers of the United States and Canada. Untested, 1 for 75 cts.; \$7.50 per dozen. Tested, \$1.25 each or \$12.00 per dozen. Three-banded Italians, goldens. H. D. MURRY, Mathis, Tex.

Italian Queens of Quality, satisfaction guaranteed. Introductory price 60 cts. each.
W. D. ROTH, Earlington, Pa.

FOR SALE.—30 10-frame colonies with equipment. For particulars write A. M. LUDWIG, 205 Wing Ave., Collinsville, Ill.

Italian queens as good as can be produced. Untested, 50 cts. each. Selected untested, 60 cts. each; tested, \$1.00 each. Safe arrival; no disease.
W. J. FOREHAND & SONS, Ft. Deposit, Ala.

Choice Italian Carniolan or Caucasian queens: Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

FOR SALE.—After July 15, 50 colonies of bees in 10-frame L. hives. Combs built on full foundation; 120 Danz. comb-honey supers; 1 Cowan 2-frame reversible extractor; 8 Holtermann winter cases, etc., all in fine condition.
FRANCIS W. GRAVELY, Stockton, Va.

Queens now ready. Golden and three-band Italian queens. I shall do my best to fill all orders promptly. If any queen fails to give satisfaction I will replace her free. Untested, 75 cts. each; six for \$4.00. Send all orders to
E. A. SIMMONS, Greenville, Ala.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & Co., Loreauville, La.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.
JOHN M. DAVIS, Spring Hill, Tenn.

Queens by return mail or money back. Guaranteed purely mated; 3-banded Italians, Northern strain, bred for gentleness, honey-gathering, and wintering. Select untested, 75 cts. each; 6 for \$4; select tested, \$1.25 each. Write for price on large orders; also bees by the colony. State inspector's certificate. Satisfaction guaranteed.
J. M. GINGERICH, Kalona, Ia.

Fine Italian queens by return mail. Select golden and three-banded, lined to select drones. Hardy, prolific honey-gatherers. Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00. Six or more at dozen rates. No disease. Safe arrival. I positively guarantee every queen to give reasonable satisfaction.
CHAS. M. DARROW, Star Route, Milo, Mo.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June
H. B. MURRAY, Liberty, N. C.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free.
J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive, \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 315, Buffalo, Tex.

HELP WANTED

WANTED.—Experienced young man in apiary work; good character, and active. Address P. O. Box 40, Altamont, N. Y. 22260

MAN WANTED.—At once to work with bees. State age, experience, and wages. Three or four months' work. Address THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

SITUATIONS WANTED

WANTED.—Position in apiary; 15 years' experience; capable of managing large apiary; \$50 per month and board.
CLINTON VAN PELT, Charlestown, Ind.

Convention Notices

The annual field day meeting of the Idaho-Oregon Honey-producers' Association will be held at Parma, Idaho, July 12, on the premises of Gottfried Lohrli. We are arranging with Governor Alexander to attend this meeting, also to have all members who are foul-brood inspectors in attendance so we may give him some real information on the subject.
P. S. FARREL, Secretary.
New Plymouth, Ida., June 20.

NOTICE OF FIELD MEETING.

The Chicago Northwestern Beekeepers' Association will hold a field meeting at the apiary of W. W. Faulkner, 3000 North Cicero Ave., Chicago, July 15. Everybody will bring lunch-baskets and have dinner together, picnic style. There will be demonstrations of treating foul brood as well as various other demonstrations showing up-to-date methods of handling bees.
JOHN C. BULL, Sec.
Valparaiso, Ind.

A SUMMER MEETING OF BEEKEEPERS.

In accordance with the action of the beekeepers at the summer meeting held at Hamilton, Ill., last year, the committee appointed has arranged for another meeting to be held at Dubuque, Iowa, Aug. 1 and 2. It is to be hoped that a permanent organization of the beekeepers of the upper Mississippi Valley may be effected, and that these valuable meetings may be continued. The Commercial Club of Dubuque has promised royal entertainment for all who attend. The meetings will be held in the beautiful Union Park, one of the beauty spots along the Mississippi. If the weather is inclement the meetings will be held in the park pavilion.
These meetings are of vital importance to beekeepers, as they help to attract public attention to the use of honey in addition to the value of information gained by the personal contact of successful honey-producers. Dubuque is a city of several thousand population, and a honey market that has hardly been touched. If more city meetings were held so as to bring the use of honey before the general public at home it would not be long before the demand for honey would be doubled.
Every beekeeper who can possibly make arrangements to attend this meeting will gain much of value besides having a royal good time. Bring your wives and families, and help make this one of the best meetings ever held.

N. E. FRANCE,
A. L. KILDOW,
C. E. BARTHOLOMEW,
Committee.

\$575 IN PREMIUMS AT THE MICHIGAN STATE FAIR.

Entries in this department close.
All exhibits in this department must be in place by

Each exhibitor at the time of filing entries will be required to take out an exhibitor's ticket, costing.

Exhibits in this department must be the product of the bees owned or controlled by the exhibitor.

All bees must be shown in observatory hives so as to be seen on at least two sides, and should not be so crowded with bees but that the queen can be easily found. They must be plainly labeled, and not allowed to fly during exhibition hours.

Exhibits of all kinds of implements, new inventions, and beekeepers' supplies are invited, for which space will be provided. No charge for space will be made for exhibits in this department.

In judging this exhibit the following score of points will be used:

SCORE FOR COMB HONEY.		
	Color	15
Cappings 30	Finish	10
	No travel stain	5
	Color	15
Honey 50	Finish	10
	Flavor	25
Comb 15	Well attached	15
Section 5	Clean	5
	100	100

SCORE FOR EXTRACTED HONEY.	
Style	10
Body	20
Color	30
Flavor	40

SCORE FOR BEESWAX.	
Style	10
Color	35
Cleanliness	30
Aroma	25
	100

SCORE FOR BEES AND QUEEN.	
Uniformity for markings.	50
Color	35
Size and shape	15
	100

DISPLAY OF COMB HONEY.—Quantity, quality, up to the amount of 500 lbs.; appearance and condition for market to be considered. Premiums will be paid on a basis of 10 cts. per section for the first, 9 per section for the second, 6 per section for the third, and 5 per section for the fourth, for actual number of sections of comb honey shown. Maximum amount of premiums: First, \$50.00; 2d, \$45.00; 3d, \$30.00; 4th, \$25.00.

DISPLAY OF EXTRACTED HONEY.—Quality, quantity up to the amount of 500 lbs., appearance, and condition for market to be considered. Premiums to be paid on a basis of 10 cts. per pound for the first, 9 for the second, 6 for the third, and 5 for the fourth, for actual number of pounds shown. Maximum amount of premiums: 1st, \$50.00; 2d, \$45.00; 3d, \$30.00; 4th, \$25.00.

DISPLAY OF EXTRACTED HONEY IN GRANULATED FORM.—Quality, quantity up to the amount of 100 lbs., appearance and condition for market to be considered. Premiums to be paid on a basis of 12 cts. per pound for the first, 8 for the second, 6 for the fourth, for actual number of pounds shown. Maximum amount of premiums: 1st, \$12.00; 2d, \$8.00; 3d, \$6.00; 4th, \$4.00.

DISPLAY AND SPECIAL DESIGNS IN BEESWAX. most attractive display, quality and quantity, up to the amount of 100 lbs., to be considered. 1st, \$20.00; 2d, \$15.00; 3d, \$10.00; 4th, \$5.00.

Special design in comb honey; 1st, \$15.00; 2d, \$10.00; 3d, \$8.00; 4th, \$2.00.

Specimen case of white comb honey, not less than 12 sections, quality and condition for market to be considered: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Specimen case of buckwheat comb honey, not less than 12 sections, quality and condition for market to be considered: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Specimens of white extracted honey, not less than 12 lbs. in glass jars, quality and condition for mar-

ket to be considered: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Specimens of buckwheat extracted honey, not less than 12 lbs. in glass jars, quality and condition for market to be considered: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Sample display of different kinds of extracted honey in 1-lb. glass jars, largest and best, labeled true to name: 1st, \$10.00; 2d, \$5.00; 3d, \$3.00; 4th, \$2.00.

Most attractive display of honey-producing plants, pressed, mounted, and named, not to exceed 25 varieties: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Golden Italian bees and queen in single-frame nucleus, observatory hive: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Leather-colored Italian bees and queen, in single-frame nucleus observatory hive: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Carniolan bees and queen in single-frame nucleus observatory hive: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Caucasian bees and queen, in single-frame nucleus observatory hive: 1st, \$5.00; 2d, \$3.00; 3d, \$2.00.

Full-colony and full-size observatory hive, showing different parts and appliances of hive, most attractive: 1st, \$10.00; 2d, \$7.00; 3d, \$5.00; 4th, \$3.00.

Sweepstakes, largest, best, most interesting, attractive, and instructive exhibit in this department, all things to be considered: 1st, \$25.00; 2d, \$12.00; 3d, \$8.00; 4th, \$5.00.

E. D. Townsend has been appointed judge of the bee and honey exhibit.

TRADE NOTES

BIG ADVANCE IN HONEY-EXTRACTORS.

In figuring out the cost of extractors under new conditions, with our late cost-finding system, we find that our prices have been altogether too low to cover all the improvements which have been incorporated in recent years, and we are obliged to make a radical advance on all sizes in order to get a fair return for money expended in labor and material. Our revised list prices on all sizes listed in the catalog are as follows:

No. 4B Novice. . .	\$13.00	ROOT AUTOMATIC.	
No. 5B Novice. . .	13.00	No. 15BR.	20.00
No. 54B Novice. . .	20.00	No. 17BR.	21.00
No. 84B Novice. . .	24.00	No. 18BR.	23.00
No. 15B Cowan. . .	17.00	No. 20BR.	24.00
No. 17B Cowan. . .	18.00	No. 25BF.	44.00
No. 18B Cowan. . .	19.00	No. 27BF.	45.00
No. 20B Cowan. . .	20.00	No. 30BF.	51.00
No. 25B Root . . .	36.00	No. 37B	52.00
No. 27B Root . . .	42.00	No. 40B	55.00
No. 30B Root . . .	48.00	No. 47B	60.00
No. 7B Novice. . .	14.00	No. 37BF.	55.00
No. 10B Novice. . .	14.00	No. 40BF.	58.00
No. 74B Novice. . .	22.00	No. 47BF.	63.00

These prices take effect at once, and prices from our California offices will be the same with freight added, figuring 3½ cents a pound on the weight as listed in the catalog.

ADVANCE IN PRICE OF WIRE NAILS.

In the first table of prices on wire nails as listed page 21 of catalog the new prices are:

2d fine, 12 cts. lb., \$1.10 for 10 lbs.; \$6.50 per keg.
3d fine, 11 cts. lb.; \$1.00 for 10 lbs.; \$6.15 per keg.
1¼-in. lining, 11 cts. lb.; \$1.10 for 10 lbs.; \$6.50 per keg.

All other sizes, 10 cts. lb.; 90 cts. for 10 lbs., and an advance of \$1.50 per keg added to present list.

To the fine flat-head nails in second table add 5 cts. per pound, \$3.00 per keg.

End-space staples, 20 cts. per lb.

Crate staples, 20 cts. per lb.

HONEY-TANKS AND OTHER METAL GOODS.

The honey-tanks listed in our catalog are advanced 15 to 25 per cent. Oil and gasoline stoves are raised 50 cts. each. Dadant uncapping-can is raised to \$10.00; German wax-press to \$14.00; Townsend uncapping-box to \$18.00; 1½ H. P. Busy Bee engine to \$36.00 with prospect that it will go to \$40.00 before long.

COMB-HONEY CARTONS AND LABELS.

The stock for cartons costs now more than double what we paid eight months ago when present prices were figured, so that we must make a further advance of 75 cts. per 1000, or \$1.50 added to present list price.

Paper of all kinds, and ink, have advanced to such an extent that on all orders for labels and other printing we must advance 20 to 30 per cent over the prices now listed. New lists will be issued shortly.

FURTHER ADVANCES BECAUSE OF INCREASED COST.

The two-wheeled cart listed at \$10.00 is raised to \$12.50, and without box to \$10.50. Daisy wheelbarrow is raised to \$4.50; the Cogshall bee-brush is raised to 20 cts.; No. 1 bee-veil is now priced at \$1.00; No. 2 bee-veil is now priced at 70 cts.; No. 3 bee-veil is now priced at 60 cts.; Alexander bee-veil priced at 70 cts.; Hatch wax-press at \$7.00.

BEESWAX MARKET LOWER.

We have had an unusual number of offerings of beeswax from beekeepers as well as dealers for this season of the year, and have an unusually large stock on hand. For several years before the war there was a shortage of wax at this season of the year, and prices reached their highest level in May and June. Till further notice we quote 27 cts. cash, 29 trade, delivered at Medina for average wax.

THE A. I. ROOT CO., Medina, Ohio.

Special Notice by A. I. Root

THE BARKER WEEDER, MULCHER, AND CULTIVATOR.

The little tool I have written up so fully in this issue will be found pictured in our advertising pages. There is one part of it not shown in the advertisement; and that is, the three cultivator teeth on the opposite side of the scuffle-hoe shown in the cut. These teeth are keen and sharp-pointed, and on a curve, so that they cut into the soil with less force than anything I have ever gotten hold of. After having used the tool a week or more since my write-up, I am still of the opinion that it is going to make a revolution in gardening—especially in the line of hand cultivators.

PRINTING FOR BEEKEEPERS.—Noteheads, envelopes, cards, tags, etc. 1000 of either, \$2.15; 500, \$1.30; 250, 95c. Fine stock and cuts used. Lowest prices in the United States. Complete line of samples and price list free.

RENNECAMP PRINTING CO., McKees Rocks, Pa.

GOLDEN ITALIAN QUEENS

Bred from a strain of great honey-gatherers; gentle and prolific. Untested, one, 75 cts.; six, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed.

L. J. Pfeiffer, R. F. D. 15, Los Gatos, California

50c -- Golden and 3-banded Italian Queens -- 50c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 50 cts.; 100, \$45.00. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. 1 lb. bees, \$1.25; 2 lbs., \$2.00; 1-fr. nucleus, \$1.25; 2-fr., \$2.25, Full colony 8-fr., \$6.00; 10-fr., \$7.00. No queens at these prices.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, \$1.00; 12 for \$10.00; Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;
with other goods, 70c.

OLD COMB AND CAPPINGS rendered
into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

THE FRED W. MUTH CO.

204 Walnut Street

Cincinnati, Ohio



SPECIAL BARGAINS

In rearranging our stock we find a number of items no longer listed in our catalog, which some of our readers may be glad to get at the bargain prices at which we offer them to reduce stock or close out entirely. We list a number of these specials on this page, and may add others later as these are disposed of.

HIVE HANDLES.

We have a surplus stock of handhole cleats such as we formerly included with all dovetailed hives, and which have been listed at 75 cts. for 100, and will dispose of them to those who want them at 25 cts. per 100; \$2.00 per 1000.

OLD-STYLE DOVETAILED CHAFF HIVES WITH BOTTOM TO NAIL FAST.

Of these old-style chaff hives we have a number of eight-frame packed 5 in a package, which we offer to close out as follows: YW 5/8, one story, eight frames, 12 packages, five hives each, at \$8.00.

NO. 2 OR B GRADE THICK-TOP STAPLE-SPACE FRAMES.

In culling over the material cut into Hoffman frames, we find pieces with slight defects which we do not want to put into perfect stock, but which are usable, and too good to throw into the furnace for fuel. We have accumulated some stock of such frames, which are packed 100 in a box, and offer them at \$2.25 per 100; \$10.00 per 500. These are a bargain at the price, to one who is not too particular as to what he uses.

1 1/4 H. P. SIXTY-SPEED ENGINE.

We have in stock two of the engines we formerly listed as sixty speed before adopting the Busy Bee engine. These are mounted on wheels, and have a counter shaft by means of which 60 different speeds can be obtained by the various changes of pulley sizes on the counter. This engine sold for \$60.00. We offer these to close out at \$45.00 each.

WHEELBARROW WHEELS.

We have a number of extra steel wheels for wheelbarrows, which we offer at a special price of \$1.25 each, or, including a pair of springs with bearings, for \$2.00. These wheels are 20 inches in diameter, with 1 1/2-inch tire, and solid cast hub holding spokes and axle in place. These wheels regularly sell at \$1.75, and springs at 50 cts. each.

SUPERS FOR EXTRACTING OR CHUNK HONEY.

We are offering, while they last, the following bargains in nailed supers for extracted honey. Some have been slightly used, and are in good condition. Prices f. o. b. Medina.

100 D9/10, nailed and painted, with top and bottom starters, nine frames in each, new. Sell new for \$1.20; offered at \$6.00 for 10; \$55.00 per 100.
100 8/10 supers, no paint. Sell new for 85 cts.; offered at \$4.50 per 10; \$40.00 per 100.

The first lots are the 5 1/2-inch supers with hanger cleats and shallow Danz. frames. The last lot are the same depth supers with shallow Hoffman frames hanging in rabbeted ends. Either style may be used for extracting or divisible brood-chambers. The price at which we offer them all nailed up is much below the regular price of same shipped in flat.

ALEXANDER FEEDERS FOR EIGHT FRAME HIVES.

The Alexander feeder as we now make it is adapted to either eight or ten frame hives. Formerly we made a shorter length for the eight frame than for

the ten frame hive. In cleaning up old stock we find 21 of these eight-frame feeders which we offer, to close out, at half regular price—viz., 15 cts. each; \$1.35 for 10.

TIN COMB-BUCKETS.

While these are listed in the catalog in one line at \$1.50 each, their convenience in carrying combs to the extractor shut up from robbers is not set forth. We have a surplus stock, and offer them, to reduce the number on hand, at \$1.25 each. You can place four Hoffman frames or five non-spaced frames of Langstroth size in each bucket.

JONES HONEY-KNIVES.

This is a form of honey-knife used largely in Canada, and preferred to the Bingham by those who have tried it. The blade is 1 1/2 inches wide, and a flat V or triangular shape. We had a lot made to supply a call we had, and still have in stock 28 of them. We offer them at 75 cts. each. Mailed as a pound parcel when packed.

TUMBLERS HOLDING 6 1/2 OZ., 40 DOZ. TO BARREL.

Having a surplus stock of honey-tumblers packed 40 dozen to barrel, including tin tops and wax-packed liners, we offer them for a short time, to reduce stock, at \$6.00 per barrel, or \$5.70 in 5-barrel lots, shipped direct from Medina.

SHIPPING-CASES FOR 12 AND 24 SECTIONS.

When we discontinued listing shipping-cases to hold 12 sections we still had quite a stock of various styles on hand, many of which are still in stock. We have also some of the older styles of cases for 24 sections of various sizes. We offer these various cases to close out at the following bargain prices. Here is an opportunity to lay in a stock of cases preparatory to the honey crop near at hand at very low prices. None of these cases, except as noted, are large enough to take sections with cartons or corrugated liners, except the bottom sheet. 12-lb. 2 or 3 row cases with 2 and 3 inch glass for the 4 1/4 x 1 1/2, 4 1/4 x 1 1/2, 4 x 5 x 1 1/2 sections, packed 50 in a crate at \$4.00 a crate; packed 10 in a crate at 35 cts. a crate. A few crates of cases for 16 sections 4 1/4 x 1 1/2 at \$4.50 per crate of 50 or 95 cts. per crate of 10. A few crates of cases for 24 sections 4 1/4 x 1 1/2, and 4 1/4 x 1 1/2, at \$8.00 per crate of 50; \$4.00 per crate of 25, or \$1.70 per crate of 10. The 12-lb. safety cases, which we no longer list with safety cartons, and 2-inch glass for 4 1/4 x 1 1/2, 4 1/4 x 1 1/2; and 4 x 5 x 1 1/2 sections, per crate of 10, \$1.20; per crate of 25, \$3.00. Without cartons, but including corrugated liners and glass, \$4.50 per crate of 50.

SHIPPING CASES NAILED READY FOR FILLING.

In repacking large quantities of comb honey we accumulate a number of empty shipping-cases which we cannot use for one reason or another. These are in good condition for use again, and are offered at the following bargain prices, each lot subject to previous sale: 390 1 1/2 inch four-row with 2-inch glass, just right for 24 sections 4 1/4 x 1 1/2; offered at 10 cts. each, lots of 100 or over; 9 carriers of 8 cases each, double-tier cases for 24 sections 4 1/4 x 1 1/2, offered at \$1.25 per carrier; 57 cases, 9 1/2 in. wide by 18 1/2 long, 5 1/2 deep, with 2-inch glass, offered at 10 cts. each; 100 cases, 10 1/2 x 18 1/2 x 5 1/2 deep, with 2-in. glass running the short way, offered at 10 cts. each; 100 cases, 10 1/2 x 18 1/2 x 4 1/2 in. deep, with 2-in. glass the short way, offered at 10 cts. each.

THE A. I. ROOT COMPANY, MEDINA, OHIO.



Mental Demons Are They Holding You Back?

Does a host of mental demons bar your path to success? Do you feel yourself incapable to meet important situations? Do you lack the power to make people recognize you—to make others see things *your* way—to compel people to listen to you? Are you weak in a crisis?

Most men have the brains and the ambition to do big things—but a weak personality—a lack of self-confidence—timidness—poor vocabulary—unreliable memory—"stage fright"—hazy, unorganized ideas—*ineffective speech*—are holding them back from the success they deserve.

RESULTS!

"Your Course is a most valuable training to anyone who desires to be able to speak in public without embarrassment."

—C. C. HOFFPAUR, Att'y, Texas.

"Not only has it enabled me to speak in public in a way that is most gratifying to me, but it has helped me in business as well."

—G. M. COSSITT, Banker, Illinois.

"It has given me greater confidence in my own ability, a better memory, a more polished vocabulary, and a stronger personality."

—W. L. WILDER, Mgr., Chicago.

"Your Course is a splendid training for the salesman or sales manager, and I heartily recommend it."

—O. F. BOURGEOIS, Pres., Chicago.

"A fascinating and practical training that overcomes one of the common weaknesses of business men—inability to express their ideas."

—GUY H. SHERRER, Banker, Idaho.

We have hundreds of similar testimonials in our files from men in every walk of life. Send the Coupon today. You owe it to yourself to find out what this Course will do for you.

Send the coupon below at once and let us tell you how you can drive these mental demons away forever—how *you* can occupy a place among men who do things—how *you* can learn to express your ideas forcefully and convincingly—how *you* can acquire a powerful, magnetic personality—how *you* can develop a strong dominating will—how you can become a powerful, public speaker. Our new scientific Course in

Effective Public Speaking and Mental Development

will quickly train you to speak forcefully and convincingly in public

- talk before your club or lodge
- address board meetings
- propose and respond to toasts
- tell entertaining stories
- make after-dinner speeches
- converse effectively
- write better letters
- sell more goods
- train your memory
- enlarge your vocabulary
- develop self-confidence and a winning personality
- strengthen your ambition and will power
- become a clear, accurate thinker
- develop your power of concentration, diligence and self-control
- equip you with power to be the master of any situation.

This Course and Service is under the personal supervision and direction of R. E. Pattison Kline, Dean of the Public Speaking Department, Columbia College of Expression, Chicago, one of the foremost authorities in the country on public speaking and mental development. You can now secure the personal instruction of this eminent authority right in your own home, by mail, in spare time. Hundreds have acquired a powerful address and a winning personality through his instruction.

Special Offer—Now Send the Coupon

Mail the coupon today for full particulars of the Special Limited Offer we are now making. This unusual offer may be withdrawn at any time. We will also send you free, many interesting facts and pointers that you should know about effective public speaking and mental development—information that you can use. Free and no obligations of any kind. Don't delay. Send the coupon now while this offer lasts.

Gentlemen:—Please send me without obligation full details of your Course in Effective Public Speaking and Mental Development, as well as particulars of your Special Limited Offer:

Name

Address

Public Speaking Department
American Correspondence School of Law
B441 Manhattan Building - Chicago, Illinois

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same

June and July		August and later	
Untested Queens	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00	
Tested Queens	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Select Tested Queens	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Very best queens for breeding, \$3.00.	1 lb bees in package, \$1.25; 2 lbs. in package, \$2.00.		

Add price of queen. If any of our untested queens should prove to be mismated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

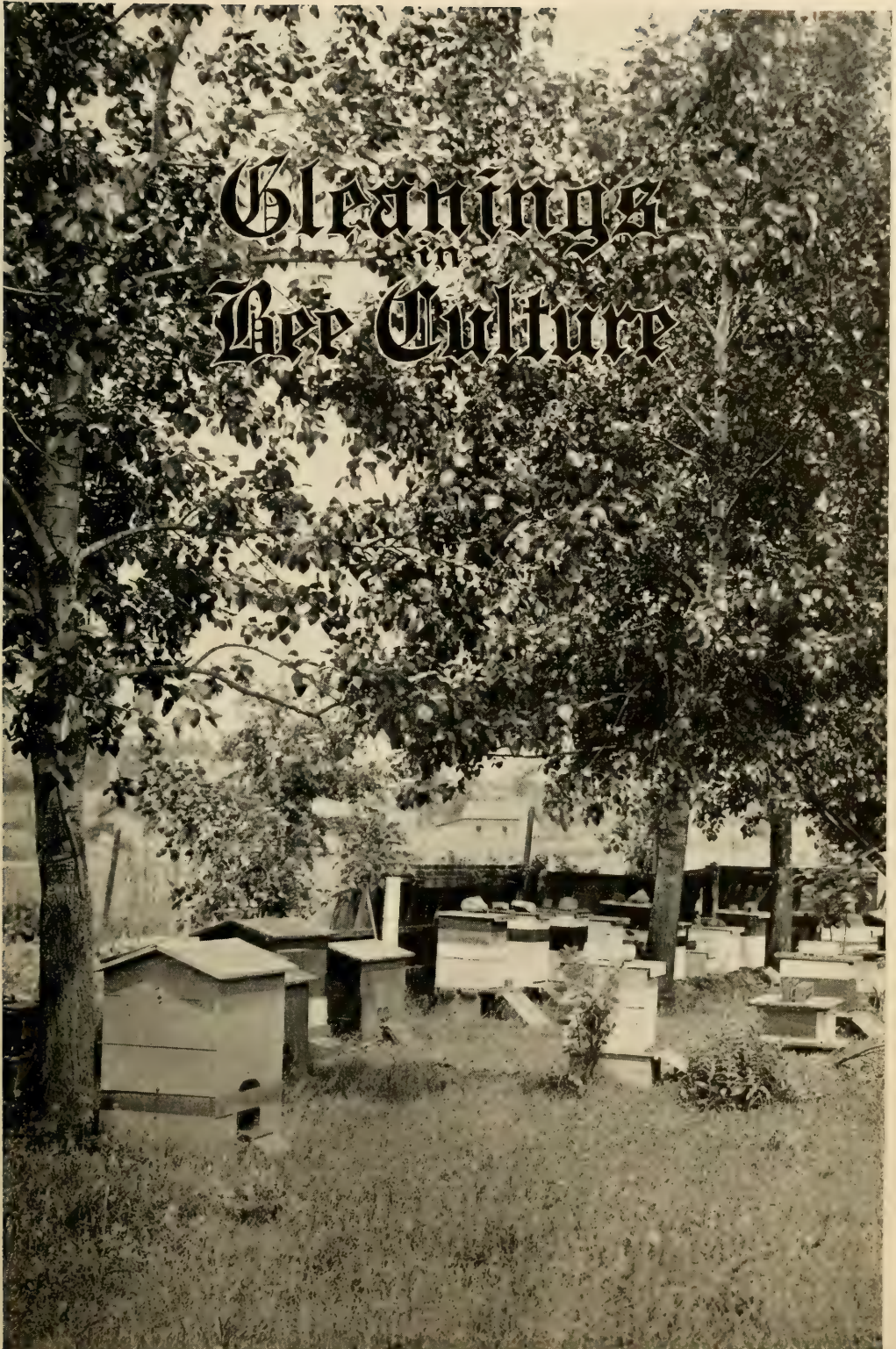
While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

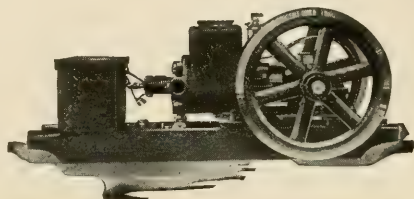
PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

Gleanings in Her Culture



THE BUSY BEE



1 1/2 H. P. Gasoline Engine

A faithful worker and first assistant to the Bee-keeper. Will operate extractor, pump, grindstone, washing machine, etc.

The A. I. Root Co. endorse this engine. Ask them.

GILSON MFG. CO.

1000 Park St., Port Washington, Wis.



"Our Bees are Gentle"

Nope, you won't get stung if you buy our queens.

Our queens are very prolific. Bees swarm but little, and are of a beautiful light leather color. Our queen booklet, telling how to rear the finest queens, is free for the asking. Queens to October 1, one, \$1.00; six, \$5.00; 12, \$9.00. Bees by the pound to Sept. 1, 1/2 lb., \$1.00; 1 lb., \$1.25; 2 lbs., \$2.00; 3 lbs. \$2.50. Safe arrival and satisfaction guaranteed.

JAY SMITH, 1159 DeWolfe St., Vincennes, Ind.

GET THIS BOOK

Galloway's wonderful book of bargains; describes fully and prices Galloway Cream Separators, Manure Spreaders, Gasoline Engines, Farm Tractors. Saves 1-3 to 1-2 on prices usually asked. Also lists and prices farm implements, fencing, auto supplies; everything for farm and household.

SAVE MONEY

By asking for this 260-page book today. A postal will do. First edition exhausted; second edition this bargain book now ready.

WM. GALLOWAY CO.
Dept. 767 Waterloo, Iowa

DAISY FLY KILLER



placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc., needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13 ½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12 ½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representative of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.

Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.
A few cars of California Water White Sage.
A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

Queens! Queens! Queens!

We will make a specialty of shipping Queens, Nuclei, and Full Colonies from Florida during the present month. We are breeding from queens that produced a surplus of 300 pounds per colony in a 24-day honey-flow in Florida, and that are unexcelled for prolificness, gentleness, and honey-gathering.

When you order queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from our famous Honey-gathering Strain for Queens, Nuclei, and Full Colonies promptly, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. Write for special price on orders of 50 or more. We ask you to give us a trial and let us prove to you that our stock is unexcelled by anything on the market.

Island-bred Italian Queens

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00
Tested Breeding Queens, \$5.00 and \$10.00. each			

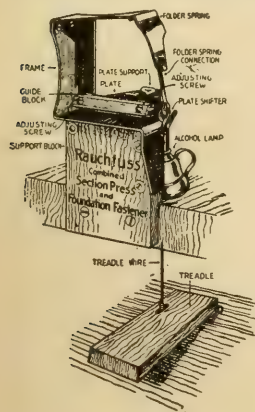
Prices on Nuclei and Full Colonies without Queens

1-frame Nucleus, \$2.00	5-frame Nuclei, \$5.00
2-frame Nuclei, \$3.00	8-frame Colony, \$8.50
3-frame Nuclei, \$4.00	10-frame Colony, \$10.00

Address all Communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER**. Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for $4\frac{1}{4} \times 4\frac{1}{4}$ and also 4×5 sections.

PRICE \$3.00, COMPLETE WITH LAMP AND TREADLE, DELIVERED POSTPAID ANYWHERE IN THE UNITED STATES. Write for 68-page illustrated catalog of the best bee-supplies made.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
1424 Market Street
Denver, Colorado.

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for **GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING** qualities have **ESTABLISHED A REPUTATION**. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	1.75 " " " 1.25
Tested	2.50 " " " 2.00
Select Tested	3.50 " " " 3.00

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Managing Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, E. G. Baldwin, Grace Allen.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30¢ per year. For all other countries in the Postal Union add 60¢ per year postage.

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W. H. Laws Talking Queens

We have taken care of every queen order the present season, altho more than 2000 queens were mailed from the Laws yards in past 60 days, but in order not to get swamped we had to withdraw our ad. from GLEANINGS.

We are well supplied with queens, both tested and untested, also as fine a lot of breeders as possible to produce. Any of these can go out by return mail. Samples of live bees from my breeding queens will be mailed free to prospective buyers on request.

The time is approaching when every beekeeper should see that his colonies are supplied with strong young queens for another season. To do this you will need a first-class breeding queen now, or make your arrangements with me for queens to be introduced near the close of your honey-flow.

Prices as follows: Untested, each, 75 cts.; 12, \$8.00; 100, \$60.00. Tested, each, \$1.00; 12 for \$10.00; 100 for \$75.00. Breeding queens, \$5.00 each; six for \$25.00.

W. H. Laws, Beeville, Texas

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their
music, and taste honey
are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-
months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

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PRESIDENT

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ASSETS OVER ONE MILLION DOLLARS

ITALIAN QUEENS

Untested, 75 cents each

Tested, \$1.00 each.

Satisfaction in all cases or money refunded.

Been breeding queens for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CHICAGO.—There has been very little movement in honey at any time during the past two weeks. Prices are without change for the lack of sales on which to establish a new basis. The bulk of the comb is selling at about 13 cts. per lb.; extracted, 7 to 8. Beeswax brings from 30 to 32.

Chicago, July 3.

R. A. BURNETT & Co.

KANSAS CITY.—The honey market has been very slow on account of the great amount of native honey that is coming to market. The price ranges around \$3.50 for the best white-clover honey, 24 sections to the case. Extracted honey is a little slow, price ranging from 6 cts. to 8 cts., according to quality.

C. C. CLEMONS PRODUCE CO.

Kansas City, July 7.

ST. LOUIS.—The demand in this market for comb honey has been very light lately. Some new extracted honey has arrived, but receipts have so far been light. No. 1 bright amber comb honey is bringing from \$2.50 to \$3.00; No. 2 from \$2.50 to \$2.75; No. 1 southern extracted amber in barrels from 5½ to 6; in cans from 6 to 7, according to quality; dark from ½ to 1 ct. per lb. less. Beeswax is quoted at 29½ for pure; impure and inferior, less.

St. Louis, July 3.

R. HARTMANN PRODUCE CO.

I am paying in Cuba for honey from 44 to 45 cts. per gallon.

ADOLFO MARZOL.

Matanzas, Cuba, June 27.

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

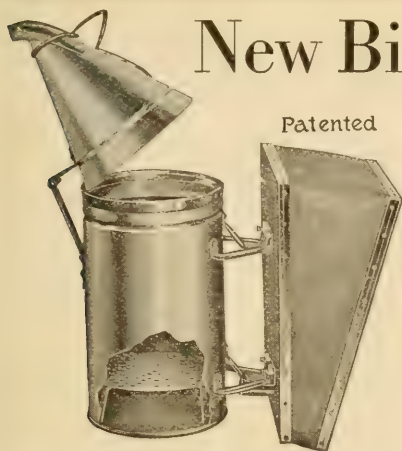
If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue



New Bingham Bee Smoker

Patented

Nearly forty years on the market and the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

Smoke Engine, 4-inch stove . . .	28 oz.	\$1.25
Doctor, 3½-inch stove . . .	26 oz.	.85
Two larger sizes in copper extra . . .		.50
Conqueror, 3-inch stove . . .	23 oz.	.75
Little Wonder, 2½-in. stove . . .	16 oz.	.50
Hinged cover on two larger sizes. . .		Postage extra.

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Grand Rapids, Michigan

For New England

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H. H. Jepson, 182 Friend St., Boston, Mass.

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Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

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Apiaries, Glen Cove, L. I.

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THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

LOS ANGELES HONEY CO.
633 Central Bldg. . . . Los Angeles, Cal.

**Buyers and Sellers
of Honey and Wax**

Write Us for Prices when in the Market



Established 1885

A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

**For Quick Shipments
Write or Telegraph
Superior Honey Co.**

Ogden, Utah
Branch at Idaho Falls, Idaho

Beehives, honey cans, and "everything in bee supplies." Manufacturers of "Superior" foundation (Weed process).

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

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Based on 20,000 circulation guaranteed.

Display, per agate line, flat, 15 cts.

Quarter page, \$8.00.

Half page, \$15.00.

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SIZE AND MAKE-UP

Column width, 14½ ems (2¾ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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NOW IS THE TIME

To order your shipping cases and thus have every thing in readiness for marketing your honey

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

What do you know about that

We are getting an almost innumerable number of orders to go by parcel post --- a great thing for beekeepers on rural delivery. BUT REMEMBER to always include enough in the amount sent to cover the postage required. . . .

For instance, if you are within 150 miles of Syracuse, and need 500 sections, we can mail them for 41c; 250 sections for 21c, and 100 sections for 11c. Foundation in 5-lb. lots, can be mailed for 11c; 2 lbs. for 7c; 1 lb. for 6c. Always figure postage more than foundation weighs. Rates inside of 150 miles once the total weight plus 4.

F. A. SALISBURY, Syracuse, New York
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Nominated by Acclamation

Lewis Sections

The kind that does not break in folding

Beekkeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who 'has been at it' for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect? Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

E. R. Root, Editor

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JULY 15, 1916

NO. 14

EDITORIAL

Reports Asked for

OUR subscribers and all others interested are requested to send in postal-card reports, consisting of not more than one or two sentences, on what the honey-crop conditions are. Do not make the reports long, as we cannot tabulate them. Report good, bad, and indifferent conditions. We want the truth, but be sure not to take more than two sentences.

We ought to have a report from every subscriber; that is, to enable us to determine the amount of honey and probable prices.

Summer Field Meet in Tennessee

THE following letter, just received from Secretary J. M. Buchanan, of Franklin, Tenn., will explain. It will be noted that E. R. Root, who is busy on the new edition of the A B C and X Y Z of Bee Culture, is on the program. He has made no definite promise that he will be present, but is making an extra effort to go.

Mr. Root:—You may announce that the Tennessee beekeepers will hold summer field meetings as follows: Nashville, Aug. 9, at the home of Mrs. Grace Allen, 4409 Charlotte Ave.; Hollow Rock, Aug. 10, at the apiary of L. E. Smith; Memphis, Aug. 11, at the Tri-state fairgrounds. Meetings to begin at 10 a.m.

There will be no formal program, but short talks will be given on pertinent subjects by Dr. Phillips, Frank C. Pellett, E. R. Root, Dr. J. S. Ward, J. M. Buchanan, Ben G. Davis, and perhaps others.

J. M. Buchanan.

Franklin, Tenn., July 5.

The Federal Net-weight Law on Local Sales

A CONSTANT and ever recurring question that comes up is this, and has been answered: "Is it necessary for me to mark the net weight on my sections of honey if I sell only in my own locality?" There is only one answer to this question, and that is, *no*.

But in view of the fact that honey produced by John Jones may be sold by Jim Brown in another state, it is always wise to play safe and mark every section with its minimum net weight in accordance with the federal law.

White Clover vs. Alsike

As mentioned elsewhere in this department, white clover is not yielding as heavily as alsike. While it is generally recognized that the latter is a better honey-plant per acre, yet for some reason this year white clover is not yielding quite in proportion to the amount of bloom in sight. We find a dozen bees on alsike where we find one on white clover. As the haying season is at its height, and alsike is being cut away, it is possible that the hot weather we are now having will stimulate the white clover so that it will make up for the cutting of the alsike. The rank growth of both clovers because of the heavy rains in the early part of the season may have a favorable effect upon alsike and unfavorable upon white clover. A little later on we shall be able to determine how much effect this had.

The Case of the Beekeepers versus the Smelter Companies in Canada Continued till October

ON page 215, and again on page 257, we stated that the beekeepers in the vicinity of Smithville, Ontario, had brought suit against a large smelting concern for alleged damage to the bees. In the case that was settled in Salt Lake Valley, Utah, a few years ago, by the smelter company paying \$60,000 to the beekeepers, the complaint was filed that the smelter fumes killed the bees and spoiled the vegetation on which the bees work. The Ontario beekeepers are claiming damages on the same grounds. That both sides may get a little more evidence, the case has been again continued until October, and in the mean time bee-

keepers in Utah, Colorado, and elsewhere, where the smelter fumes are said to have ruined or are ruining the beekeeping industry, are asked to communicate with Louis Minor, Smithville, Ontario, Canada, who seems to be handling the case for the beekeepers.

Of course, it goes without saying that the smelter people will endeavor to show that the loss of bees was due to some other cause than the fumes. Indeed, their attorney has written to us asking for particulars regarding bee paralysis and Isle of Wight disease. The presumption is that the defense will endeavor to show that the decimation of bees is due to one or the other of these two diseases. But they will have to show, also, of course, that it is in the locality.

The fact that the big smelters of the West settled with the beekeepers in the sum of \$60,000 would seem to indicate that the Salt Lake Valley smelters acknowledged the damage rather than fight it out in the courts.

This case in Ontario will be a hard-fought one, as both sides are preparing for a big battle. GLEANINGS will be glad to give its readers the benefit of any developments that may come up, with a summary of the proceedings, and the final verdict if any.

Honey-crop Conditions and Prices

A CAREFUL survey of the United States government weather maps, showing the weather conditions and the amount of precipitation thruout the clover belt of the country, and the reading of reports as they come in from subscribers all over the country, indicates that a crop of clover honey is probably assured. How large this crop will be it is a little too early to estimate. This is the way reports are coming every day, "Bumper crop of clover honey," "heaviest flow in years;" "best ever;" "seems like old times;" "the oldest inhabitant never saw a white-clover crop at all comparable to that which exists around here this year," etc. In fact, we have not seen an unfavorable report from any of the clover districts. There is yet from ten days to two or three weeks of bloom in sight. Many report one super filled, and bees at work in others. The flow from clover is a little slow, but steady when weather conditions are at all favorable. The excessive rains, according to the aforesaid government maps, have let up, and in their stead we have hot weather with occasional thunder-showers—just enough to keep the clovers in good condition and to stimulate new bloom.

There is a possibility and even probability that 1916 will go down as one of the biggest years for the production of clover honey that we have ever had.

Two or three years ago we had come to believe that the natural lime in the soil had become exhausted, and that there would never be as large a yield of clover honey as there had been in the old-fashioned days; but the heavy precipitation last year and the early part of this year would seem to indicate that the scarcity of clovers in districts was due not so much to lack of lime as to insufficient moisture in the soil. Abundant rains have put clovers back to their old prominence, and reports everywhere say the fields are white.

We had a call from Mr. R. F. Holtermann, of Brantford, Ontario, Canada, the largest honey-producer in Canada, and one of the largest in the United States. Said he, "If you think you fellows on your side of the line have good clover you ought to come over on our side."

While naturally conservative he believes he is going to have a good crop. Some of his very best colonies have two 12-frame supers of extracting-combs filled already, and he estimates that there is two weeks of clover still in sight.

Reports are rather meager and scattering for Colorado; but early in the season it was reported that there had been sufficient snow in the mountains to insure a crop of alfalfa. Prospects are good in Nevada and Idaho, and there will probably be as much of northern-grown alfalfa as formerly. But in New Mexico and Arizona, and southern California, the yield of alfalfa has suddenly slumped, particularly in Imperial Valley, where the beekeepers are somewhat discouraged over the situation. There has been from a light to a fair yield of mountain-sage, but probably not enough to supply the general demand. In northern and central California the yield has been fair.

The season has been exceptionally good in Texas, and is starting up a little in some of the southern states. Conditions in the early part of the season in Florida were unfavorable, but are improving according to a late report from the southern part of the state.

PRICES.

This is a rather dangerous subject, as it is impossible at present to give any idea how prices will rule this year. They will probably be easier than last year in spite of the sharp advance of sugar. The fact that the housewives of the country are boycotting the sugar trust in all the large cities, and turning to other forms of sweet, partic-

ularly to honey, may have a tendency to offset the effect of a big crop. The general advance in all food products will have a decidedly strong tendency to hold honey up to its present level. But the probabilities are that along in September and October, particularly toward November, the prices on *extracted* clover will be somewhat lower than at present. Producers who have honey to sell would do well to get it on the market early; for when the laggards begin to dump their product prices may sag.

The supply of comb honey from last year is still large, and there is no question but that prices on comb honey are going to be easier than last year. A good many misinterpreted our advice to produce extracted instead of comb this season; but if they knew the actual market supply, so far as comb honey is concerned they would not be inclined to question our statements.

Taking it all in all, the reader should understand that it is still early to make any positive statement concerning the probable yield of clover honey thruout the United States. Weather conditions from now on may be unfavorable, with the result that the crop will be only half what indications now promise. At one of our outyards, where there has been a good deal of cutting of alsike, we are noticing a decrease in the flow of nectar, and the bees are getting a little cross, just as they always do when the flow begins to check up. While white clover is abundant, it is apparent it is not yielding as heavily as alsike. However, this applies only to our own locality. See another editorial on this subject.

A Representative from Great Britain Investigating Bee Paralysis in the United States

THERE have been reports of bee paralysis again this year; but so far nothing serious has developed in the northern states. Mr. C. H. Bock, of Newmarket, England, is now in this country under the direction of the Department of Agriculture of Great Britain to study the trembling bee disease or what showed itself in various places. He comes here for the sole purpose of ascertaining whether there is any relationship between the disease of Great Britain and something similar that has been making various outbreaks in this country. He is at present working with Dr. Burton N. Gates at Amherst, Mass. He has found the *Nosema apis*, supposed to be the exciting cause of the Isle of Wight disease in some American bees. While it has been determined that

this parasite is present in healthy bees, it is supposed that, under favorable environment and in some strains, it may develop something serious.

Mr. F. R. Beuhne, of Tooberac, Australia, had a very severe attack of what he believed to be bee paralysis. He finally developed a strain immune to the disease. With this strain he had no further trouble; but when he introduced another strain, bee paralysis broke out in all its fury. He naturally concluded that the exciting cause was present all the time, and that, when favorable subjects were introduced, they fell easy victims.

Mr. Bock expects to go to Washington, D. C., and, later, to Medina. In the mean time he is examining specimens of paralytic bees or other bees that seem to die for no apparent reason.

In some cases the Isle of Wight disease shows no outward symptoms, except that bees are dying in great numbers. Usually the affected bees will be found at the entrance, unable to fly, dragging their bodies on the ground as tho they were scarcely able to walk. In some specimens one or more wings will be out of joint. There may or may not be a distension of the abdomen, and there may or may not be any discoloration. Usually there is associated with bee paralysis black and shiny bees with distended abdomens; but even bee paralysis does not, in its early stages, show such bees. About the first symptom is a few trembling bees. They seem to be itching all over, and scratching their bodies as if distressed. Other healthy bees keep pulling at them as if to get them away from the entrance. As the disease develops, some bees will become black and shiny. The symptoms thus given seem to tally very closely with the Isle of Wight disease, except that with this disease the bees will be dying in large numbers, and congregated in bunches at the entrance of the hives, or even in the hive itself.

If we have Isle of Wight disease in America, the sooner we know it the better. We do not expect anything very serious, however, even if we do find it here, as the conditions in most places in this country are unfavorable for its development. It needs cool, moist, chilly rainy weather; and that is the reason why so much bee paralysis (which is like the Isle of Wight disease) showed itself in so many places last season in this country, and particularly around Portland, Oregon, where conditions are much the same as they are in Great Britain. There are so many symptoms in the Isle of Wight disease and bee paralysis that are identical that it is hard to escape

the conclusion that they are one and the same thing, differing only because modified by the season and environment.

Are Bees a Source of Infection in the Transmission of Blight on Fruit-trees?

IN this issue, on page 605, appears an article by Prof. Gossard, in reply to our editorial on page 384, May 15, wherein we held that the professor had drawn some wrong conclusions, and incriminated the bee in a way that hardly seemed warranted from the facts in hand.

In order that the reader may better understand this discussion, perhaps it would be well to make a statement concerning blight as we find it on pear, quince, and apple-trees, and variously called pear-blight and twig-blight. The latter rarely goes beyond the current year's growth on apple-trees, and disappears the next year because it does not live over as it does on the diseased wood of the pear and quince, or at least that is the generally accepted opinion. Blight, therefore, is not to be feared to any extent on apple-trees, but it may be the ruination of whole pear-orchards. The only remedy is thoro pruning and cutting off the diseased portions. Very little attention need be paid to the twig-blight on apple-trees except to prevent this general source of infection to pear or quince trees.

Referring to the article of Prof. Gossard in this issue, we are very glad to give this space, not only because he stands high among our entomologists, but because we believe him to be perfectly fair. It is evident that we misunderstood his viewpoint, because he says if he had to make a choice between the extermination of the bees and the sacrifice of the two species of fruit (apples and pears) he would render his decision in favor of the bees, and then make shift to other fruit, of which there is plenty in the world. This shows that he is a very warm friend of the bees.

Scientists are not all agreed as to how blight is disseminated. At one time it was thought that bees were the main distributors of it, because if they visit the blossoms of fruit-trees containing the bacteria they could carry it to healthy blossoms. While this is true in part later investigation seems to show that biting and sucking insects piercing the tissue of the twigs that are diseased can and do carry the infection when they bite into healthy trees. It has been determined that in the early spring months blighted limbs which had been allowed to remain over winter exude a watery

substance containing these bacteria. The inference has been that the bees would take up these juices, carry them to the hive, and then again to the field. Any one who knows anything about bees knows that they would have no occasion whatever to visit trees *unless the trees were in bloom*; and the very fact that young pear-tree orchards (which we have seen in California, and *which never bloomed*), were badly blighted, would indicate that bees, at least, were *not* the carriers of the infection. Indeed, the strong probabilities are that the bark biting and sucking insects are the main cause.

Prof. Gossard says in this issue that both fruit-growers and beekeepers alike agree that the blossom-blight does not appear to a great extent until some time after the blooming season has opened. He seems to have the impression that they might carry it, after the trees are out of bloom. Any practical beekeeper could inform him that bees do not visit trees or plants unless when the trees are in bloom, such bloom having either pollen or nectar to offer. Unless the blossoms are badly blighted in the first place, which they will not be in the early spring, as we understand it, they would not be likely to carry any blight-germs; and even if they do carry them to the hive, they could not live long enough to do any harm.

If we understand the theory of blight transmission, where and how it affects the trees, it would seem, in view of the evidence in hand, such evidence as is furnished here by Prof. Gossard and others that our bees rarely carry any blight-germs. It is conceivable, however, that the birds might come in contact with the watery substances containing the bacteria that caused blight and carry it from tree to tree. Ants and other insects that crawl over the tree and over portions that are diseased could very easily carry it to trees that are healthy. Bark biting or sucking insects could likewise do it, and do do a large part of it if the testimony of careful men is correct.

To summarize, bees do not visit trees except when the trees are in bloom. They would have no occasion for crawling over the bark of infected trees, *and never do* like ants and other insects; neither could they nor would they bite into the bark, and never do they have occasion to suck the juices from the bark. The very strong testimony offered by Prof. Gossard in favor of the bees would condone for all the mischief that might be laid to their door.

We are not denying that bees may transmit blight from diseased to healthy blossoms; but as the bloom is rarely infected we may infer that bees seldom carry blight.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



MENTION is made, p. 416, of full combs, made the year before, and the bees put nothing in them that year. Isn't there some mistake about that? Do bees ever build comb in advance of immediate need?

INSTRUCTION is given, p. 490, to *shake* all bees in front of the new hive, and afterward to use the queen-cells on the shaken combs. Beginners should be informed that brushing is meant instead of shaking. Shaking might ruin the cells.

ALLEN LATHAM, p. 480, accounts for the greater immunity of Italians to European foul brood by saying that blacks suck out the juices of the dead larvæ, and Italians don't. That's entirely new to me. I wonder if others have observed the same thing. [This was also new to us. We shall be pleased to get reports.—Ed.]

IN the Gravenhorst skep, movable frames can be put, p. 481. The novice may understand that to mean that it is a skep rather than a hive, and that frames are not always used in it, altho they *can* be. Gravenhorst was one of Germany's greatest beekeepers, and his hive, altho having walls of straw, is just as much a hive as the Langstroth, and no more used without frames than the Langstroth. [The Gravenhorst hive is in reality the Long Idea hive, with this difference, that it must be turned upside down to manipulate, and that the outer shell is made of straw in place of wood.—Ed.]

How often it is that a thing that looks all right to us turns out to be all wrong when submitted to the bees! There's that idea of feeding *very slowly* when getting queen-cells built, p. 466. I should have said, "If honey is not yielding, the more you feed the better." Then I'd have lost my cells and wondered why! [There are two reasons why slow feeding is better than rapid. If the food comes too fast, it excites the bees, causing them to rush outdoors, expending energy and wing-gear that is utterly useless. The second reason is, fast feeding very soon results in a stoppage of the *incoming supply*. The bees may have ever so much honey or syrup in the hive; but unless there is something *coming* in all the time, cell-building is quite likely to be stopped and cells destroyed.]

Cell-building will go on when the supply comes in rapidly; but in a short time the brood-nest will become congested, and the

queen will have no room for egg-laying. There is every reason for slow feeding rather than rapid, either for queen-rearing or raising bees.—Ed.]

P. C. CHADWICK says, p. 473, "I have learned better than to try to compel bees to put up nice comb honey when the flow is not sufficient." I'm beginning to think that a poor colony is much the same as a poor flow. At any rate, this year I'm picking out the colonies that make poorest work in sections, taking off their sections, and giving them extracting-combs. [You are right; and if so, does this not argue that it is an advantage to produce both comb and extracted honey in the same yard, and very often on the same colony? Besides, there is the factor of the season, the factor of the colony, and the factor of the individual or owner? The latter, if he is a beginner, will succeed better with extracted than with comb honey. We therefore advocate the production of both extracted and comb honey in the same yard. But this year we advise the large producer to run mainly for extracted, as there will be enough comb honey produced to take care of all market demands this year, and then some.—Ed.]

PARDON a mild plea for correct English. If "diarrhea" be the correct word, it ought not to give way to an incorrect word that is smoother, altho to me "diarrhea" sounds much smoother than "dysentery." The claim that the latter has become so engrafted into our literature as to make change seem impossible, p. 469, is only a seeming. I've known those into whose language "hadn't ought" was quite thoroly engrafted, yet in time they learned to say "ought not." ["Hadn't ought," of course, cannot be tolerated in any dignified English. Such a phrase is not engrafted in the pages of our regular magazines and papers, altho it is a part of our every-day spoken language. Dysentery is a part of our bee literature.]

We have had some experience in trying to change our nomenclature, and we find it an uphill business. It has taken us years to change "nameless bee disease" to "bee paralysis." We attempted to change "fertile worker" to "laying worker," as the former term was thought to be less accurate, but we never really succeeded. If you were making books and magazines, you would not attempt to make a change from "dysentery" to "diarrhea." Does not the former term indicate the meaning of the word closely enough? Then why attempt what is difficult at best?—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Shall we try to eradicate sacbrood as well as foul brood from our yards of bees by the destruction of combs and brood?

In Japan they call white clover "Jesus grass" because it was introduced by an American missionary.

If a wire imbedder is kept hot over an oil-stove it works much better, especially if the foundation is cold.

Our friend Holtermann reminds us, page 310, April 15, that when looking for queens we should keep our minds right on what we are doing, even if we have to keep saying mentally all the time "queen, queen, queen," as tho we were trying to call her out from her hidingplace.

G. C. Greiner, page 312, April 15, tells us how to get bait sections that, when filled, will be in no way inferior to sections filled by the most approved method. This is the formula: Let them be drawn and filled, and taken from the hive, extracted, and cleaned up by the bees as soon as possible, and then stored in air and dust proof compartments until wanted. Good!

I wonder if there is any business other than beekeeping so stimulating to the mind and that leads one to be so interested in everything about us—plants, flowers, other insects, birds, animals, and even soils and climates! No need to go to the movies, nor to read stories to find something interesting. The book of nature is a very interesting book.

Louis H. Scholl says, page 390, May 15, that this spring has afforded a most convincing experience in favor of a divisible brood-chamber. Here, he says, was the same old condition of nearly twenty years ago, and for which reason he adopted a divisible hive. The question arises in my mind whether it will pay to make changes in our hives to suit conditions that do not come oftener than once in twenty years.

"Favorable spring for bees," says the editor, page 382, May 15. "While the spring is a little late, and fruit bloom has been delayed, the conditions were never better for bees." Well, I should say so! Our bees are swarming two weeks ahead of any-

thing I have ever before known. Dandelions must get a good deal of credit for it, for they are getting to be a great help during May, stimulating brood-rearing and giving bees a chance to fill unoccupied combs with honey.

We are under obligation to Arlie Pritchard, page 298, April 15, for his experiments on white rats and toads. We know that it sometimes happens that what will poison one thing will be harmless to another. Sheep will eat with impunity aconite—a deadly poison to man. We may not, however, conclude from these experiments that all creatures that eat live bees are immune to their stings. A lady of my acquaintance was bothered with skunks feasting on her bees. She set a trap, and caught the offender. She said she thought she would give Mr. Skunk all the bees it wanted and left it in the trap in front of the hive. But when the sun was up, and the bees had a fair show, it did not take them long to kill the skunk.

LET SWEET CLOVER KILL OUT THE WEEDS.

My good friend Byer, page 349, May 1, objects to sweet clover because it sometimes comes up in meadows where it has once been sown. The same objection might be raised against alfalfa, as I see more or less of that growing in meadows where farmers have tried to raise it, and the plants that persist in remaining in the soil appear as hard and worthless as dried-up stalks of sweet clover when left till time timothy is fit to cut. Formerly the sweet-clover seed sown was one-half hard seed that would not germinate the first year. Now it is easy to buy scarified seed that will practically all grow the first season and prevent the later growths. There is yet much to be learned about the cultivation of this plant, and its greatest value may be in pastures where it will not harm the crop of timothy, but will produce two or three times what the pastures are now producing. Mr. Byer speaks on the same page of hundreds of acres of limestone formation about Brockville, used mostly for pasturage, that paintbrush has run over and ruined. Suppose this were sown to sweet clover. It would doubtless kill the paintbrush as that plant has killed other plants, and furnish more feed than they ever produced before, besides enriching the land so it will get better from year to year, rather than poorer as in the past.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The pictures of the bees on the bicycle, page 493, June 1, brought to my mind a story I once heard of a cow-boy who was riding a very wild pony. It chanced that the pony in some of his antics got a rear foot in the stirrup of the saddle, whereupon the boy said, "Say, if you are going to get on I will get off."

* * *

Mr. Scholl says, page 471, June 15, that by his method "it is possible to take off more than a thousand pounds of honey in half an hour." Then he adds, "The writer holds an actual record of 1140 pounds of honey removed in exactly 28 minutes." I figure that to be just a fraction under 41 pounds per minute. No, thanks; I do not care to have any one slamming around among my pets like that.

* * *

Dr. Miller says, page 469, June 1, "My observation has shown that bees decidedly prefer old black combs for either eggs or honey." I am not as ready to proclaim my observation as to honey-storing as I am to egg-laying; but I do know that Dr. Miller is entirely right about the egg-laying. I have seen queens skip a new comb to get to an old black one to deposit her eggs, not merely once but a number of times.

* * *

Dr. Miller says, page 469, June 1, "An easier way is to let the bees clean the cappings." Well, it may not seem good manners for me to be scolding my elders; but, doctor, you should be a bit explanatory when making such assertions. One of the worst things we have to contend with out in this neck of the woods, where one range overlaps the other, is that just such work is practiced, even where disease is plentiful, and the results may be imagined in many instances where the bees from several apiaries may be helping to clean up the caps. The worst feature, however, is the tendency to encourage robbing, so I am wondering whether you set your cappings out in a kind of free-for-all way or have a perfectly safe way.

* * *

In a recent conversation with Chas. W. Mixer, who is interested in bees in the Coachella Valley, I was informed that climatic conditions are a great factor with them, and that this season their crop would be short on that account. Mr. Mixer is in

the upper end of the Salton Basin, and Imperial in the lower end. Here almost the entire hope is in the irrigated alfalfa, and climatic conditions are all that could affect the crop, as the soil is irrigated the same from year to year. Mr. Mixer said, also, he thought much of their trouble this season was due to cold nights and not to very warm days. This seems to be the foundation for most of our climatic troubles—lack of heat at the critical time. It is undoubtedly a fact that we have more large honey yields when the springs are late than we do with extremely early seasons. Even when the weather is so cold and the spring so backward that we become impatient, hot weather usually comes with a good flow of nectar when the rains have been sufficient.

* * *

CLIMATIC CONDITIONS.

The older beekeepers are often sighting things in relation to honey crops that they believe are factors in the output. One of these situations is "climatic conditions." I have given this question some consideration, and have come to the conclusion that it is not always a mere myth. It is my opinion that we have been affected, to some extent, by such conditions this season. Vegetation on the foot-hills this season, until recently, has shown no ill effects of the lack of late rains, and all thru the blooming period of the sage there was no apparent lack of moisture in plant growth, yet the nectar was not in the plants in quantities heavy enough to cause a heavy honey-gathering. The button sage bloomed profusely, as did the white variety, yet no yield of consequence.

But what are the climatic conditions that so affect the honey yield? That is a hard question to answer. The variation in my scale-beam this season from day to day gave me a little insight to some of the so-called climatic conditions. During the white-sage bloom we had many cool foggy mornings, followed by moderately warm days. From one-half to three-fourths of a pound was all my scale colony could make in 24 hours; yet when we failed to have the fog, and the heat climbed up around 100 degrees for a day or two the scales would show from 1½ to 1¾ lbs. gain in the same time. This condition is typical of the white sage.

In the season of 1905 the white sage did not bloom much until July, by which time the temperature was going up around 110 degrees daily, it being an unusually warm spell, and such a crop of white sage has not been harvested since that time.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Until recently I have believed that hives could be made with halved corners, nailed both ways in such a manner that they would stand just as rough handling as dovetailed hives. This is not true, however. Thru the purchase of bees we have quite a number of them in a few of our apiaries, made by skilled workmen, that become loose in the corners and lose their shape. There are several ways of making these corners so that the walls may be nailed from both sides, but none of them equals the dovetailed corner. This is especially important with us, since we handle all our colonies and the honey crop in hive parts, instead of individual frames or combs, and haul them long distances the year round.

* * *

While there are various ways of fastening foundation sheets into shallow frames I like none so well as the melted-wax method used by ourselves, and described in detail some time ago. Our frames have plain, smooth, grooveless top-bars. These are laid successively on to our frame-rack for holding three frames, and the sheets of foundation are simply laid against the spacing-boards, close to the top-bar, and a spoonful of melted beeswax poured along this and the job is finished. There is no time lost in first working the edge of the sheet into a groove, which, by the way, becomes useless after being once filled with wax as well as weakening the top-bar. This plan is also much more rapidly done than by the methods employing the rolling or pressing to the top-bar about $\frac{3}{8}$ inch of the foundation sheet. The latter method is also a more expensive one on account of the costly foundation that is wasted in fastening the sheet. Then, too, it does not adhere quite so well as the melted-wax fastening; and in this case the same wax, scraped from the top-bar again and again, whenever the comb is removed, is used to fasten other sheets.

* * *

QUICKLY REMOVING THE SURPLUS HONEY.

An interesting article was that of J. A. Green, p. 351, May 1—freeing supers of bees in out-apiaries by means of carbolized cloths laid over the supers to be freed of bees, in connection with some smoke.

I tried this some years ago, when mention of this method was occasionally made, but gave it up as impracticable, in our method of management at least. It may work better with others. First, it requires more time

in the proper preparation of the cloths themselves, and to remove the supers with them than with our method of hurriedly smoking out the bees, removing the supers, and shaking out the few remaining bees when the supers are carried to the wagon or truck. The second objection was the danger of the odor affecting the honey, which it did in several cases. While this may be overcome to some extent, perhaps by using more care and by the use of highly refined carboloid acid (as suggested by Mr. Green—it is rather expensive just now), and with hired help, it is more of a problem to have things attended to with the same carefulness as when one does it himself.

TWO FORDS BETTER THAN ONE.

Yesterday we returned from a trip to five apiaries where we put on additional supers of full sheets of foundation for bulk comb honey. At the last yard we "picked up" a load of the finished product and brought it back with us to the honey-house. With the supers, frames, and honey there was about 1200 pounds of weight to the little Ford truckload. We left at about 10 A. M., and were back at 6 P. M., covering a distance of over fifty miles, and going into and thru pastures and over rough roads. Today I read the editorial on page 466, June 15, in which the editor gives his experience with one of these small cars. My experience in out-apiary work with the Ford warrants me to add "amen" to what is said there. My dreams have been about one of the somewhat larger trucks for the heavier hauling, in addition to the small runabout, and the delivery and larger bee-moving platform spring wagon and two horses; and until recently I thought that my equipment would not be complete without such a larger truck. After trying it, however, I changed my mind. It was impossible to make the fast time with the large truck that I desired, nor to haul as safely supers filled with foundation or tender comb honey. A load of 84 of our shallow ten-frame supers on the larger truck resulted in a good deal of torn or jolted-down foundation sheets, while there was no such trouble with my loads of 50 such supers on the Ford, and yet we made far faster time. Taking into consideration, therefore, the great difference in expense, first cost, and the cost of upkeep thereafter, I have decided upon another Ford to enable me to take somewhat lighter loads but in considerably quicker time. In fact, most of the running around of the beekeeper can be more economically done in this manner.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



Very timely, and pertinent to the statement on page 525, June 1, comes a letter from Mr. Roy M. Scammel, of Eau Gallie. Mr. Scammel was a very extensive bee-man at one time, having had 500 colonies that he owned and managed. Now he has about 70, but is building up to the former number as rapidly as he can. He says:

"Don't you think that good hives, carefully managed, means half the battle?"

"Good hives" for this climate means water-tight covers, in our opinion. Without that no hive is good nor even passable. So far we have found nothing equal to the metal covers, and are discarding all others for them. The second part of your query, "carefully managed," takes us out into manipulation, and we agree with you that manipulation is not only half but three-fourths of the battle, or even more, granted that one is in a good location for nectar, of course. Without that, no management or manipulation is any *worse* than another so far as profits are concerned!

"Do you sell your honey in bulk or in small packages?"

A limited amount I sell in one-pound glass jars, and five and ten pound tin pails, locally. Most of the crop is sold to dealers away, whom I know, to whom I ship in 60-lb. tin cans or barrels (seldom orange honey in anything but tin cans), and who take all I can produce of good quality. Poor grades I dispose of to bakers.

"Do you get any honey from the berry of the palmetto?"

In certain years, late in summer, when the berries are ripe, bees will gather the exuding juice from the bursting and over-ripe berries of the palmetto just as they will from the over-ripe and bursting apples, pears, and grapes in the North. This juice, even when stored in the combs, is not honey, nor can be. It will candy quickly, as you say; is black and strong, and fit only for feeding to stimulate breeding in times of dearth. I get none here, however, only on the East Coast, and then only in certain years, as, I understand, is the case with you also.

"Have you bees on the St. Johns River? I used to think that a good location."

None now—formerly a small apiary there. There are some good locations along that river, especially where one can get near enough to large orange-groves, as well as to the palmetto (saw and cabbage) that are

found more or less along the river banks and tributaries to it. It is better still if one can get a place where willow, maple, and elm are among the hard woods of the hammocks on the banks. The three latter furnish spring stimulation, and even surplus, according to some reports, tho I am inclined to believe such places rare. Mr. Clute, now of Sanford, seems to like the St. Johns for outyards—at least as navigation on the water is easier than on land.

"Do you get honey from heartease and Spanish needle?"

Not here; on East Coast, in certain seasons; but not more than is needed to carry bees over to spring, after last extracting in the summer, which, with us there, is after mangrove. I do not know of any heartease even there, but reports have come to me of considerable of it along the rivers inland, south of here.

"Do you know whether the yellow jessamine yields poisonous honey?"

We have "oodles" of the yellow jessamine (*Gelsemium sempervirens*), and bees are humming about it and burying themselves in the yellow blossoms all spring, from February to March, unless orange happens to be yielding well, then they seem to prefer orange-blossoms. We have never noticed any peculiar effects, one way or the other, from the activity of the bees about these blossoms, nor have we ever been able to notice that it had any effect on the honey supply, as it never makes a showing in supers. Nor do the bees seem to suffer from it at all (see A B C and X Y Z, p. 428, 1913). We believe it is useful among other plants for spring stimulation. By the way, I should like to note here that the spelling in the A B C referred to above is jasmine, and probably an oversight on the part of the contributor. The so-called "yellow jessamine" should be spelled "jessamine," not "jasmine." The latter is quite a different plant—the *jasminum* belonging to the olive family, while the latter, the gelsemium, or false jessamine, is of the *Logania* family. The jasmine (Arabian *jasmine*, for example) has white flowers, and not yellow, like the yellow jessamine referred to above. See Baerecke, Ferns and Flowering Plants, Atlantic section, middle Florida; News Pub. Co., De Land, Fla., p. 111.

"Does the water hyacinth yield honey?"

Never, in all my experience, have I seen a bee on the water hyacinth of the rivers (*Piaropus crassipes*). I don't believe it has a bit of nectar.

To be continued

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



CHILLED BEES, ETC.

"On page 416, May 15, Henry S. Bohon says he found a colony of bees starved out with a temperature of 10 below freezing, with the bees apparently dead. He brought the colony to the house where the warmth and a sprinkling of warm syrup brought all the bees to life. I never was able to bring a bee back to life after it had been frozen. It seems to me that 10 below freezing should freeze bees."

It will be noted that Mr. B. lives in Virginia, and undoubtedly on a spring morning the temperature could be 10 below freezing, and the bees inside the hive on the bottom-board not be frozen, as the hive and the warmth from the ground below would keep them from the frost of an early morning. Several times in my 40 years' experience I have brought individual bees and whole colonies back to life under similar circumstances. My first experience along this line was about 55 years ago, when as a boy in roaming the woods in the maple-sugar season I heard bees in flight. Looking up I located a colony of bees on their cleansing flight from a tree. The sun was shining bright, but the air was cool, so that some of the bees fell on the snow in the shade and became chilled. That night it rained all night, but kept mild for two or three days more. Father rather doubted my finding a bee-tree, and three days later I passed that place again. Having a little box in my pocket I picked up about a dozen of the "bedraggled dead bees," put them in the box, and the box in my inside vest pocket. Arriving home I took the box out to prove to father that I had found a bee-tree. On pulling out the box a buzzing was heard inside, and on opening it before a window every bee flew to the light.

In later years I tried chilling bees by shaking them on the snow near dark with a temperature of 35 to 40, then, gathering them up, putting them in the cellar where a temperature of 40 degrees was maintained, dreaming that whole colonies might be kept in a "hibernating state" by some such scheme; but from ten days to two weeks was all I could get, even when the bees had been made to fill themselves with honey.

On page 425, June 1, I see that Editor Root thinks that "a sudden chilling kills them." I do not believe that the suddenness has anything to do with the matter. The editor mentions "a zero atmosphere."

One of his slowly chilled bees would succumb in such an atmosphere just as quickly, for on the freezing of the juices of the bee that bee dies just as surely as if "crushed under the foot of man." It is in the freezing that the life goes out.

TIME FOR THE EMERGING OF QUEENS.

"Dr. Miller and H. H. Root, p. 427, June 1, are having a scrap over the time it takes for the emerging of the perfected queen from the time the egg is placed in a queen-cell by the mother queen. Which is right?"

Perhaps Dr. Miller will accuse me also of going by traditions; but it was in the year 1869 that I read from Moses Quinby that the queen is in the egg form 3 days, in the larval form 6 days, and in the pupa form 7 days, or 16 days from the egg to the perfect queen. He said that cool weather, to a certain extent, prolongs the time, and hot weather shortens it a little; but for all practical purposes, 16 days is quite dependable. Now, when the bees are becoming somewhat sluggish thru a desire to settle down for their winter nap I have known queens to take 18 and 19 days in perfecting. Then in the excitement and bustle of the swarming season, with the mercury soaring up in the nineties the most of the time, I have had queens emerge in only 15 days and two or three hours; but I have never known of a single queen emerging in as short a time as 15 days. In most of the short-time queens they have been proven to be such as are held in their cells by the bees after they are mature, when the figuring is done with swarming colonies. Bear in mind that a queen at maturity is as white and weak as any worker when it begins to gnaw the capping of its cell, and a newly matured queen cannot fly any more than can a newly matured worker. Such white weak queens do not push the covers off their cells and fly off while you are cutting the queen-cells off the combs, as we are told hatching queens often do.

HONEY IN CELLS CONTAINING EGGS.

Dr. Miller, on this same page, says that Arthur C. Miller has "a new one" on him in saying that "bees sometimes put honey in a cell that contains an egg." I do not now have A. C. M.'s article where I can turn to it, but I have known bees having laying workers that put both eggs and honey in embryo queen-cells, and to a certain extent in drone-cells, but not in worker-cells.

GENERAL CORRESPONDENCE

THE COST OF HONEY PRODUCTION

BY ARTHUR C. MILLER

Prepared from an address delivered at Syracuse, Dec. 7, 1915, before the New York Association of Beekeepers' Societies.

Do you remember when the colt shied at the paper and left you sitting in the dust in the middle of the road? Some jolt and some surprise. Well, that is just how I've felt every time I've tried to get any of the "boys" to tell us what it costs to produce a pound of honey. They have shied at the question even worse than the colt did at the paper. I've tried them several times, and now I'll try again; and perhaps this time I can get them to walk right up and investigate. As an aside, let me tell you that some of the "boys" I've tried were frisking around threescore and ten or more—full time they were steady enough not to side step at such an innocent question.

Why do I want to know what it costs, do you ask? What difference will it make? Even if you know you cannot get any more for your crop, can you? Fair question; and the answers are that I want to know if I am doing a profitable or a losing business. If the former, is it a fair profit—worth continuing? and if the latter, can I make it profitable or shall I abandon the business altogether? I also want to know what each step in the business costs me that I may know where I can better matters or stop some leak. That I get money enough out of the business to support me and have a little left over is not to the point at all. The same capital and energy put in some other line might pay far better; or even my time alone, perhaps, could yield me a greater income. Enjoyment and health are not under consideration now—just cold dollars and cents.

How shall we get at the cost? Just as they do in any business—find the basis of it and build on that. The basis is "capital and labor." First, we must determine the amount of capital we have invested; then we must determine the value of the labor used in working that capital. That our figures may be the more readily applicable to apiaries of different sizes, or to a plant embracing many apiaries, it is essential that we establish a unit of value; and that unit is the capital *per colony*, just as the mill men figure at so much *per spindle*. In the figures which follow, the basis used is of one hundred colonies. A larger plant would lower some items but increase others, while in a smaller plant the reverse would be true.

After consideration the hundred-colony basis has been deemed a proper one.

The capital per colony on this basis is approximately \$10, divided as follows:

Hives, supers, honey-boards, escapes, frames, and brood foundation, \$4.32; making up, painting, tools, extractor, tank, etc., 68 cts. Total, \$5.00. Cash for working capital, \$5.00.

The first items may vary a little under different local conditions; but from figures obtained from several sources I believe them to be reasonably accurate. The item of "cash for working capital" should equal the investment in fixtures and appliances. This is something that is all too often overlooked or underestimated, not alone in honey production, but in most lines of business. More failures come from having too little capital for the business than from any other one cause.

This cash capital must supply sections, crates, super foundation, food, cans, bottles, labor, freight, and take care of all the "overhead" charges. All these things must be paid for; and when the crop is sold the money expended for such items must be returned to the business. If you will consider these things a moment, I think you will see the necessity of the classification.

With the capital determined we must next ascertain the cost of using it, the "expenses" of running the business. The following items are to be recognized:

Interest, 6 per cent; depreciation and upkeep, 10 per cent; insurance and taxes, $1\frac{1}{2}$ per cent; labor, 10 per cent.

This makes a total of $27\frac{1}{2}$ per cent which must be earned each year before the business can pay the owner any profit. Let me explain these items.

Interest: It should be charged; because if the same capital were invested in a mortgage, for instance, it would yield the owner interest without labor on his part.

Depreciation and upkeep: The plant must be "kept up," which means both repairs and replacements; obsolete appliances must be superseded by new and better ones, so this item must enter into our determination of costs. Ten per cent is a fair rate at which to figure this. Some lines of business figure much more than this, while few figure much less.

Insurance and taxes: Few beekeepers insure their plant, and in many states they are not taxed; but these items should be estimated, for insurance is good business and taxes may be imposed.

Labor: The determination of this item was not easy. Labor at ten per cent means one dollar per colony per year. I have been told both that it was too much and too little. It does not mean a dollar just to handle a colony of bees for one season; but it does mean the amount you must charge against each colony for all the labor connected with handling it, the crop secured from it, and the labor of preparing that crop for sale. That does not have anything to do with the cost of selling it, which is another part altogether. We are now considering cost of production only; and getting it into condition for sale is part of that cost. This labor item has been figured for a skilled man at \$5.00 per day. The beekeeper should charge for his own labor as much as he could earn in any other line at which he is skilled. If he can earn \$10 or \$20 a day in some other business, then he must charge his time at the same rate if he goes into the honey business. Naturally the man whose time is so valuable is going to conduct the bee business on a scale sufficiently large to yield him such a return for his time. Some critics have questioned whether a beekeeper's time is worth \$5.00 a day. If his time is not worth that of any of the skilled trades he had better quit the honey business and hire out as a day laborer. But other critics agree with me that \$5.00 is a fair value to use in estimating the cost of honey production.

When it comes to an estimate of one dollar to handle a colony of bees, the crop therefrom, and the labor of upkeep, I can only say that the figure is the result of some careful records and figuring. If you differ, just go over your estimates and figures again before you refuse mine. At the worst, I believe you will be likely to place the cost higher rather than lower.

Accepting the percentages given, let us see what it costs to produce a pound of honey; but before I give you figures let me disturb your equilibrium by telling you that counting "sections" as equal to "pounds" of extracted, the cost of producing a crop of comb honey differs very little from producing one of extracted honey. "If this is treason, make the most of it!"

At an operative per-colony cost of 27½ per cent on a capital of \$10 we have an expenditure of \$2.75. The average per-colony yield from statistics in several states and Canada is given as about 50 pounds.

That figures as 5½ cts. per pound. If this estimate is wrong I believe it errs on the side of being too low rather than too high. Some may say they can get along with less capital, but they must have a care that it does not force cost up in some other place. Others may say that an increase in the average per-colony production to, say, 100 pounds would mean a cost of 2¾ cts., but it would not. While it would cost less to produce 100 pounds per colony than 50 pounds, it would not cost half as much. Don't get fooled there. The figures given are based on average production. If your average for good years and bad is above this, *your* per-pound cost will be lower, that is all. First be sure what your average for *a series of years* really is.

It will be noticed that I have not estimated the value of the bees. That was intentional. While the first few colonies are usually purchased, the rest are "grown," the product of "labor." The apiary may be decimated by disease, cold, or starvation, and we restock it by dividing or by swarms—in other words, by "labor." You say an apiary of well-stocked hives is worth more than the same hives without the bees. True, if you are closing out the business; and even so the presence of the bees merely enables you to get more nearly the real value of your hives and fixtures. In most cases the beekeeper raises his own bees, and then surely they cost only labor; and if he is buying an apiary he seldom pays more than the value of the hives and equipment, if as much, and that little more is very properly chargeable to labor. For the purposes of figuring the costs of honey production I have deemed this classification of the bees the proper one.

There is another very necessary explanation in connection with these remarks on cost of production, which is that the labor charge given is only for the time actually used in the work connected with one hundred colonies; but it gives the per-colony cost, which we must know. If a person is making honey production his exclusive business he must charge his whole year's time against the cost unless he is engaged in some other gainful occupation during the "off" season of the year. While the big operator has to charge a year's time to cost of production, it is distributed over so many colonies that the per-colony cost is not materially increased, and he has really less *unproductive* time during the active season to charge to cost.

The foregoing is submitted for your consideration and criticism. I do not ask you to agree with me unless you are satisfied

that I am right. I do believe that the basis of estimate you will find is right, tho you may differ as to the amount of investment

and cost of operation. If it is your pleasure to debate these items, stick to the "percolony" unit in your estimates.

Providence, R. I.

EASY QUEEN-REARING

BY ALLEN LATHAM

Not a few beekeepers fail to renew the queens in their colonies with sufficient frequency because of the difficulty of getting the queens. They do not feel like buying so many queens, and they do not find it an easy task to rear their own queens.

The various methods in vogue will work in the hands of their originators. When some one else tries a well-advised scheme he runs upon snags. In the end the queens he raises cost as much as or more than queens bought outright. I have probably tried every plan of queen-rearing that has ever come to my notice—some with fair success, others with rank failure. Either I got too small a percentage of queens or else the queens were poor.

After years of trial and effort I stumbled upon a method which is giving me more uniform success than any other. It is so simple that it would seem as if any one could succeed with it, and so economical that even professional queen-rearers will probably find it worthy a trial. The objection to be found with the majority of methods of queen-rearing is that they give too few queens for the bees employed.

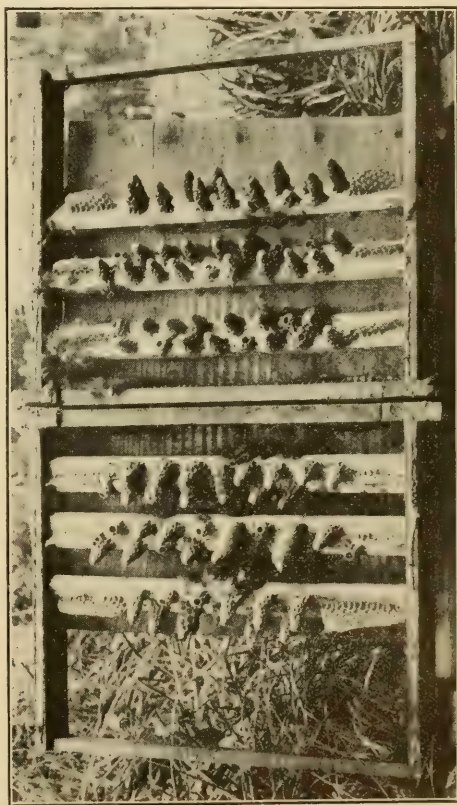
It is generally taught that a colony will not rear over a score of good queens at a time. This means the employment of a full colony of bees for some ten days and only a dozen or score of queens to pay for the expense. If that same colony can be made to turn out 50 to 100 good queens in the same time, it is easy to see that the expense is tremendously lessened. Many a year I have neglected to rear as many queens as I desired, simply because it meant the employment of so many colonies to do the work. Now one colony will give me all the queens I want in one batch.

The photograph shows that the cells tho numerous are good ones, and never by any methods that I have employed have more uniformly good queens been obtained.

This method in Connecticut can be used any time from April to September, but it gives the very best success during the swarming season. The steps to be followed are these:

1. Prepare cell cups to the number of queens desired up to 100. Fasten these closely together on slats, crowding them so

that 18 or 20 come within a length of 11 inches. This can be done by zigzagging them on a strip one inch wide. Two or even three such strips can be fastened in one frame. Two or even three frames can be prepared.



Not peanuts but queen-cells—illustrating Allen Latham's easy method of rearing queens.

2. Put small pieces of foundation at the ends of the strips so that the wax bees will have a chance to use up surplus wax, otherwise many cells will be engulfed in comb. Also put in a lower strip of wood with only foundation on it. These strips should be placed about $1\frac{3}{4}$ inches apart—enough, any way, to allow the cells to clear the strip below them when they are finished.

3. Select some strong colony in the afternoon—a colony which has a host of nurse

bees. Find the queen. Remove her and all the brood. If there are no combs well stocked with pollen and honey, then find such in other colonies. If there are enough bees leave a few on the combs of brood and set those combs with queen and bees in a closed hive near by. Now place one comb of pollen and honey in the selected hive, then place in all the prepared frames of cells, and then the other comb of honey and pollen. If it seems desirable, pour some water into the vacant cells of one comb. Put the cover on the hive and leave it till the next day.

4. The following day pick out the comb from which the larvæ are to be taken. Best results follow if this selection has been forestalled by putting in a sheet of foundation for the breeding queen to lay in, feeding the breeding colony so that there will be a fine lot of larvæ of the right age. Take the ready comb into a warm room which has a moist atmosphere, and where there are no drafts.

5. The royal jelly, which must be ready (and this can be obtained by removing the queen from some colony four days before, if one has no other source of supply), is now diluted with distilled water or else saliva. If saliva is used it is well to rinse the mouth out well so that all foreign substances likely to injure the larvæ will be removed. Dilute to the consistency of heavy cream. By dipping a blunt stick into the jelly, place a small drop into each cell. By this time the distracted colony has worked more or less over every cell cup, and it is ready for a larva.

6. The transferring of larvæ takes time, and there is danger of the royal jelly glazing over and the larvæ being seriously injured. One must work with celerity, and much speed will be gained if the most promising portion of the comb containing the young larvæ is cut out, and shaved down so that the picking up of an individual larva is made very easy. It is well, in case two frames are to be stocked, to do one and place that in the colony before the other is done.

7. Put the stocked cells into the colony. Feed each night for four days from one pint to one quart of much-diluted honey, unless there is a honey-flow. Do not feed after the fourth day, for by that time every cell is about to be capped, and feeding is useless. There is one exception to this. If there is a great dearth of honey on, it is well to feed enough to keep the bees fat and contented.

8. On the tenth or the eleventh day, according to the age of larvæ you select, all

cells must be removed and each given to a nucleus, or cared for; for when those cells are ripe the work may all be lost by the emerging of queens and dueling.

9. Most of the bees of the colony can be used to build nuclei; but if that is not necessary, then replace the frames of brood, young bees, and queen which now occupy the hive which, ten days or so before, was set near by. The colony will go on and show practically no ill effects from its task of rearing 100 queens.

From its lengthy description one might be staggered by this plan of rearing queens; but when once tried he will find that the method involves as little labor as any method in use, measured on the basis of the number of queens obtained. Indeed, it involves far less labor than most of the methods. There is no swarm-box nuisance attached to it; there is no need to shut bees up to get them distressed; there is no set time to be followed in regard to the preparation of the colony and the grafting—anywhere from six to twenty-four hours giving good results.

If one needs from fifty to one hundred queens he will find it very gratifying to get those queens at the expense of but one colony for ten days. And if he has no nuclei to care for the cells and emerging virgins, he can put them immediately into the colonies which are to be requeened. It is only necessary to remove the old queens three days before the cells are to mature. If this is done at a well-selected time, say just after the honey-flow, little if any loss can follow, because the colonies are without laying queens for some ten days or a fortnight. Also, there is but a small percentage of loss in wedding-flights when virgins fly from full colonies.

I have never tried to see how many good queens can be reared by this method. I have said from fifty to one hundred; but I really believe that a powerful colony could easily give two hundred or even more. It would be no task at all for a colony to feed 8000 worker larvæ for four or five days, and it would not be unfair to assume that the feeding of 300 queens would be equally easy. In my opinion the number is limited rather by the beekeeper's ability to get the cells grafted with sufficient rapidity so that they may be all equally cared for.

One statement more is desirable before closing. It will be observed that the arrangement of frames and cell cups is such that they lie bunched within the midst of a great cluster of bees. Much of the secret of success is in concentration.

Norwichtown, Ct.



One of the classes in zoology at the Germantown High School. "An intimate knowledge has been gained of one of the most remarkable phases of insect life."

BEES FOR HIGH-SCHOOL STUDENTS

BY ADELENE H. JACOBS

That beekeeping can be incorporated in a course in elementary zoology has been demonstrated at the Germantown High School for girls in Philadelphia. It was a notable day in September, 1915, when a colony of Italian bees was housed in a double-walled hive on the lawn outside the zoological laboratory. Remarkably fearless, the students gathered around the hive and received their first instructions in the life-history and activities of the bee.

Instead of reading about *Apis mellifica* and looking at museum specimens of queens, drones, and workers, our pupils in groups of ten, protected by veils of their own making, began their study of insects at the buzzing hive. Here we watched the foragers returning with their balls of golden pollen; learned to distinguish the kinds of bees on a crowded brood-frame; became fa-

miliar with the cells used for storing pollen and honey, or in which were developing the whitish wormlike drones and workers, and observed the attendants cleaning a bee that had been spattered with honey. These and many other things we learned at first hand with keen interest and enthusiasm. In addition we found that biological problems of an abstract nature became more real and significant. Adaptation of structure to function; relationship between environment and individual development; instinct vs. intelligence; division of labor and communal life—all these topics were vitalized, and had practical meaning when interpreted thru our own colony of bees.

The pupils showed a sustained interest in the bees, even during the winter. They reported to us, now and again, that the bees were flying "at recess time" when an occa-

sional mild sunny day came. With the return of spring, our demonstrations at the open hive were resumed. Not only were those who had watched the bees in the fall eager to see the hive opened again, but new classes which had entered the school in February were curious about the big white box. With more confidence the teachers who had been studying bee-literature zealously during the winter months handled the frames before the ever interested audience.

It was one of the students who came into the laboratory on May 25 with the words that sent such a thrill thru us all: "The bees have swarmed! They're up in an apple-tree!" Forty feet up on the branch of an apple-tree was a wonderful compact conical cluster of thousands of bees which we had known heretofore only in books. A real problem confronted us. Never did a teacher have a more delighted and attentive class, remaining long after the dismissal bell to watch the hiving of the swarm. A new hive had been provided weeks before for just such an occurrence. The Germantown school was now the proud possessor of two colonies of bees.

In the fall of 1915, when school was resumed, the students were attracted to one of the hives, at that time increased in height by two supers. To give a practical turn to our study of bees, we sold the sections to the students. And very attractive they looked, too, in printed cartons on which we stamped the school name. Incomplete sections were cut into small cubes placed on crackers. Two students played shopkeeper, and sold these "tastes" for a few cents to the eager purchasers. These funds are to place the colonies on a self-supporting ba-

sis, so that we need not apply to the school board to defray expenses for the equipment of the past season and the coming one. Last autumn we had bought sugar for feeding, so that the bees would surely have sufficient winter stores. We also bought a new queen to replace the one reared in the old colony, and which had mated with a black drone. The offspring, hybrids, were unpleasant to handle in class demonstrations.

In our year and a half acquaintanceship with the bees there came the new experience of moving the hives. The old school was vacated on the first of November, when we moved into a fine new building. One day in December the janitors carried the two hives to their new stand. They constructed a wooden carrier or support on which they bore each hive a distance of two city blocks, being most careful to avoid jolting the hives.

When we tell of incorporating the rudiments of beekeeping with our lessons in zoology we are usually asked, "Do not the students get stung?"

The question is easily and definitely answered. Now and then a girl is stung, but there have not been any serious swellings among the students. They rather glory in their intense but brief suffering, for the spirit of martyrdom assumes strange forms in this age. In view of the fact that in the spring and fall over a hundred girls receive instruction at the open hive, the number stung is a very small percentage.

In any event, the lessons in zoology have been vivified by contact with a living subject, and an intimate knowledge has been gained of one of the most remarkable phases of insect life.

Philadelphia, Pa.

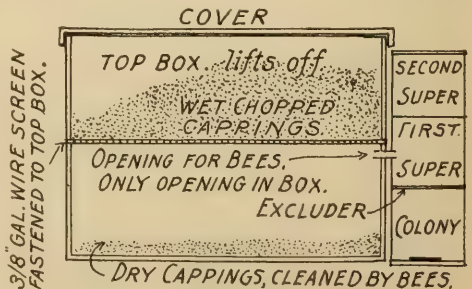
HOW TO GET ALL THE HONEY FROM CAPPINGS

BY H. H. M'INTYRE

Any contrivance that will get all the honey from cappings, and have it stored and sealed in combs without danger of transmitting possible foul brood to more than one colony in the yard, will save beekeepers much disagreeable work, and thousands of dollars in spoiled and wasted honey. I have invented a plan along this line which I predict will supersede all contrivances for squeezing, melting, and draining cappings.

I use a cleaning-box made like the diagram shown herewith. It is very simple and inexpensive, and a pleasure to operate. I allow the day's cappings to drain over night in the uncapping box or tank, and

the next morning dump them into the cleaning-box. The bees will do the rest. If there is a colony in the yard slightly dis-



eased with American foul brood it is a good plan to use such a colony for cleaning the cappings, for the disease exists in the combs anyway, and it can be treated in the late fall after the work is over. The combs above the excluder may be combs that have been above an excluder over a diseased colony, so nothing is wasted.

The box may be any size to fit requirements, but one should be careful to get it large enough. I used the plan last season with a small box, and it worked so well that I feel safe in recommending beekeepers to use a large one. My new box is 4 feet square and 3 deep.

One would naturally ask what is to prevent honey dripping from the wet cappings above the screen down on to dry cappings below? I have had no such trouble, because I chop up my cappings at the end of the day and allow them to drain all night in the uncapping-tank, so that by morning there is not enough honey left in them to drip.

Furthermore, the bees take all the drip that comes their way before it has a chance to fall down on the dry cappings. I have had colonies that would take 30 pounds of syrup from a feeder in one night, so I feel confident that one colony will take all of the drip from my large box.

The galvanized screen that the cappings rest on should be $\frac{3}{8}$ or $\frac{1}{2}$ inch mesh. The bees, being on the under side of the screen, stick their tongues in between the chopped-up pieces of cappings and take out all the honey they can reach. Then I suppose they clear away the dry particles so as to reach the honey further in. At any rate the dry cappings fall to the bottom of the box.

I use a glass tube to connect the hive with the cleaning-box. This causes the bees to enter the box quickly, and also enables them to find their way back into the hive readily, as the tube permits a little light to get into the box.

Woodbridge, Ont.

LET THE BEES DO THE WORK

A Plan for Cleaning Honey from Combs after Extracting, or from Partly Filled Sections. A New Way of Finishing them

BY G. A. DEADMAN

Before putting away our extracting-combs in the fall or at the close of the honey harvest we much prefer having them clear of honey, as they are certainly nicer to handle, apart from the possible souring of honey adhering to the cells when put away direct from the extractor.

There are different ways of doing this. The common way, probably, is to place them indiscriminately on the hives. Apart from the possibility of having a cluster of bees in the super next the brood, which have to be gotten rid of when removing, there is more danger of spreading disease that may exist in the apiary. I am inclined to the belief that the little honey in each super is as good as lost when divided up among so many. It does more harm by the excitement caused than good.

The plan we have been using for many years, and described at the Ontario beekeepers' convention in Toronto, is as follows:

A stand or platform is made that will be large enough, not only for the colony of bees that is to do the cleaning up, but for five tiers of supers; viz., one tier on each of the four corners and one directly behind this colony. This stand should be large enough so that, when the supers are in place, there will be sufficient space between

each tier of supers to allow the covers to be placed on each tier. This space between the tier is covered so that no bees can enter from without. It is better to allow a little extra, so if the stand should sag somewhat in the center there will still be room enough for the covers. As will be seen in the illustrations a lath is nailed around the outer part of the bottom of this platform on which to rest the supers. A piece of lath two inches or so long is also nailed in the center corners for this same purpose. Now, when the hive containing the colony of bees is in place there will be a bee-space below, giving access to every super in each tier.

When making this platform, which, of course, varies in size, depending upon the size of the frame you use, a simple plan is to take an empty hive which is to represent the colony that does the cleaning up, and place it on a level place or floor. Next place a super on each side of it, one at each back corner, and one behind. Put covers on each, and allow half an inch or more between them. The space between the hive and supers is the width of the strip you will require to go between, which rests on the lath that provides the bee-space below. Now you can either make the platform a little larger and nail on a strip to keep the supers in place, or can make it the same



G. A. Deadman's stand with 20 supers of wet extracting-combs that have been cleaned up by a colony of bees. The cart is shown ready for the removal of the supers.

size and nail a lath or strip all around the stand. This is not really necessary, but it prevents any possibility of the supers shifting and allowing the bees to gain access from the outside. If they should it might be all up with your colony of bees that are employed in this way. The front entrance can be contracted to possibly two inches, as the bees, having access to so many supers, their forces are divided. Make the bottom of this stand either of matched lumber or well jointed, and that will not shrink. Some 2 x 4 scantling, or better, 3 x 4, make good supports to nail the floor to. If only two of these are used (which makes it easier leveling) then place them 8 inches or so from the end of your boards. This will prevent your platform or stand from sagging in the center, which it might otherwise do.

There is a choice between having enough stands to accommodate all supers that are not required for the fall flow, and leave them in there until ready to pack for winter, or to have only one, and have one colony do all the cleaning, removing the supers and replacing by others as fast as they are dry. The former plan has these advantages: Your supers are not taking up valuable space in the honey-house, and any danger from moth-worms is obviated. When removed late in the season not a bee remains, and the supers are so tightly held together that a tier can be lifted at one time. The

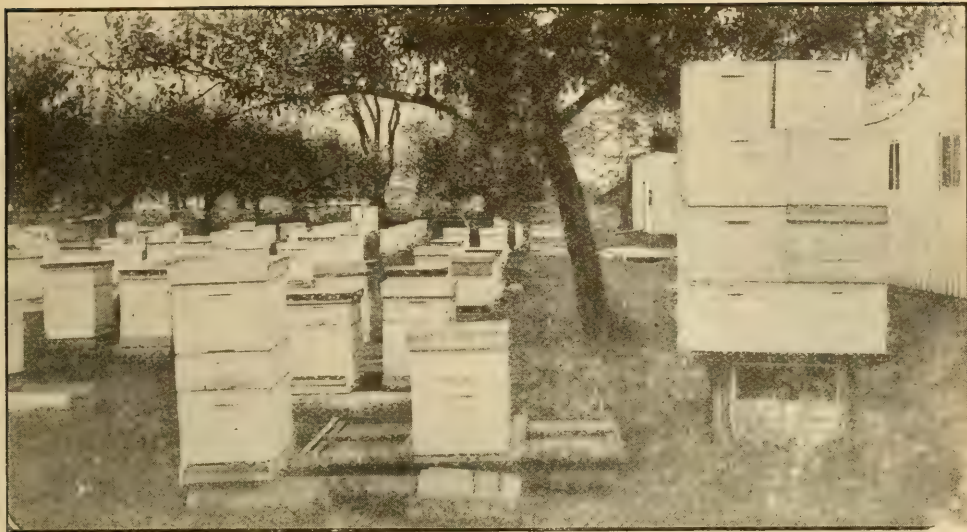
photo shows four supers in each tier; but we sometimes have five, and our frame is two inches deeper than the Langstroth.

For obvious reasons I select the first colony in any row or rows nearest the honey-house for this job. By this plan combs from diseased colonies can be kept by themselves, and then any free from pollen I consider safe to use again. I keep the others frequently for use again in such colonies; but that is another story.

I might say that supers are preferably put on these stands about sunset, or on a rainy day. Just as soon as these begin to accumulate in the honey-house we draw them out, even tho not sufficient to fill a stand, as more can be added any time. If colonies are in pairs one may have to be moved a little to make room for the stand, but the bees soon find their location.

FINISHING PARTLY FILLED SECTIONS.

Those who have had any experience in the production of comb honey know too well that it is very difficult to have every section completed, or sufficiently so as to make them all salable. Apart from those that may be sold as second class, there will be others that are not, tho possibly coming very near it, while there are others again that can only be extracted. We used to extract them by inserting half a dozen in frames made for the purpose. Not so now, however. Those that require only a little



If desired, partly filled sections may be placed over the colony, and the honey from the wet combs used to finish them up.

finishing to make them salable are put in a section super and placed over the colony of bees on the stand, while the others are put in section-supers also with no separators, first uncapping any that may be capped. We put the supers on the stand the same as the extracting-supers. The honey in these will be carried by the bees to finish up those on the hive.

It is a good plan to place a wet extracting-super below each tier of comb honey

so as to get the bees started. Of course, one can use wet extracting-combs only to finish unfinished sections. There are many sections that are practically filled, but not capped. These, when finished, may class as extras. Sections that are capped or partly capped, but very thin, should be uncapped. Otherwise the bees may build over the cappings, or back of them, making an irregular surface.

Brussels, Ont.

THE SWARMING PROBLEM ANALYZED

BY J. E. HAND

I am aware that my views upon this subject will not be regarded as orthodox doctrine; but before judgment is rendered it is the part of wisdom to weigh the evidence carefully. For several years I have believed that the law of swarming is not correctly interpreted; and this conviction became a certainty when my mammoth 16-frame colonies built queen-cells and began swarming two weeks before clover harvest, with plenty of room in brood-chambers. This experience led me to look for the real basic cause of swarming, and resulted in the conclusions recorded in this article. While we cannot point with certainty to one independent factor as a sole cause of swarming, it has been ascertained that the queen is the pivotal point of the swarming problem. Give me a queen of undiminished fecundity and I will show you a non-swarming colony, proving the correctness of my thesis.

THE LAW OF QUEEN-CELL BUILDING.

Queen-cells are inseparably associated with swarming; therefore, before we can fully comprehend the swarming phenomenon we must have a correct interpretation of the law of queen-cell building in its true relation to the law of swarming. While queen-cells are built under two different conditions, the basic cause of all queen-cell building is "supersedure," therefore there is virtually one kind of queen-cells with a manifold mission—1, to supersede a failing queen; 2, to supersede a departed queen; 3, to precipitate swarms. Nature has ordained that preconstructed cells shall be built upon the slightest indication of diminished fecundity of the queen, and at no other time. Queens are subject to the laws of nature and physiology; therefore the heavy strain upon the organs of reproduction required to develop several thousand

eggs per day often results in temporary exhaustion of fertility, causing the immediate construction of supersedure cells. This condition is likely to occur during the height of breeding, known as the swarming period.

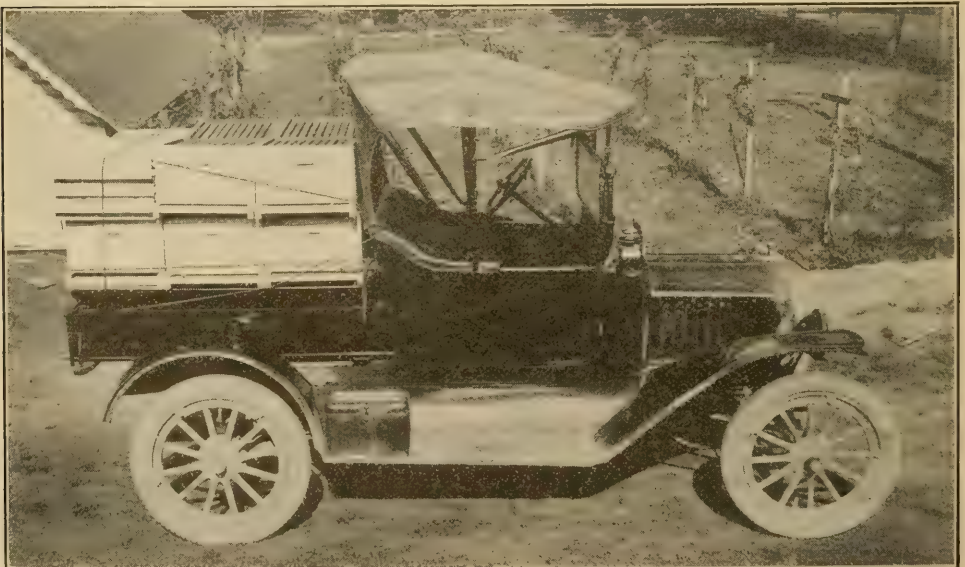
THE LAW OF SWARMING.

It is well known that a capped queen-cell is an element of antagonism to a vigorous queen, and that, during her period of temporary exhaustion, or broodiness, a queen will tolerate queen-cells and assist in her own supersedure by laying eggs in them—a purely normal impulse analogous to that of a broody hen wherein the mother instinct predominates—and will lay eggs in queen-cells under no other conditions. By the same law of nature and physiology, the queen usually passes the broody stage and regains her wonted power of fecundity in a few days, in which condition the presence of capped queen-cells is an element of discord, and a reaction occurs which culminates in the precipitation of a swarm if other conditions are favorable; otherwise the queen will destroy the cells and resume her duties with rejuvenated energy. An open cell is not an element of antagonism; therefore the reaction occurs, and the swarm usually issues shortly after the first queen-cell is capped. The potency of capped queen-cells to precipitate swarms is abundantly demonstrated by the issuing of after-

swarms, often repeated as long as a quart of bees and a queen-cell remain.

From these observations the following deductions are drawn: 1, swarming is a momentary impulse and not a premeditated act; 2, preconstructed queen-cells are the *cause* of swarming, not the *effect*; 3, every queen born is cradled in a supersedure cell; 4, special swarm-cells, other than post-constructed, are purely nominal; 5, the presence of a queen of undiminished fecundity is proof against queen-cells, therefore immune from swarming. We prevent swarming by requeening before the zenith of fertility merges into broodiness, thereby equalizing the breeding season between two queens without exhausting the fertility of either. This method simplifies manipulation and keeps the brood and bees together without developing the swarming impulse, which is purely a matter of diminished queen fecundity. It would seem that colonies in large hives would be more likely to swarm than in smaller ones; but there is another angle to the situation. Queens cannot control egg production; and if time is wasted in looking for available breeding-cells, eggs are promiscuously scattered over the surface of combs much more rapidly than in normal laying; therefore such hives tax the fertility of queens more severely than larger ones. Under such conditions some queens drop several eggs in a bunch.

Birmingham, Ohio.



Our Ford runabout converted into a light truck, as mentioned editorially June 15.

TIMELY HINTS ON QUEEN-RAISING

Using Naturally Built Cells without Transferring

BY JOSEPH GRAY

The underlying principle of all queen-rearing may be condensed into four words—*crowded, clustering, queenless bees*. Some may question the queenless part of this statement; but the *principle* is there, even tho a queen may reign in another part of the hive.

Queens should be produced from healthy stock, and in a perfectly healthy neighborhood, therefore a strict watch should be kept for both types of foul brood, and, I am sorry to add, *Nosema apis*. As regards locality for a heavy or light flow I am somewhat undecided. I do know that my greatest hatch—40 cells on one comb—were raised during a heavy flow. The nuclei do well at such a time; and so, while a light flow may give a little less trouble from the crowding of combs with honey, still I rather favor a heavy flow of nectar.

METHOD.

All queen-raising falls under two heads—man-made cell cups and grafting, and bee-made cells and natural selection. I have always pinned my faith to the latter. "Queens raised direct from the egg" has been my slogan.

It is immaterial who first used the flat comb. Suffice it to say that in 1909 at the Lancashire Royal Agricultural Show, England, in a lecture on queen-raising I exhibited a quarter-frame hive and flat comb with 9 fine queen-cells thereon, and brought forth the principle of "crowded, clustering, queenless bees." Do I still advocate so small a frame as 4 x 7? No. Why? Because the larger and bigger the cluster, the better, both for raising and mating.

At the present time I am using the full-size American standard frame here in the Far West. The more we can cut out the fads and make one article serve two purposes the better. It is next to impossible to store combs except on the colonies. The moths get them every time.

SELECTING THE BREEDER.

One season I was going thru 1000 colonies. At yard No. 7 I came across a colony that for two seasons had filled two supers to the others one. I never saw that queen, yet she was my favorite. Somehow I think it is habit; but I cannot help marking a queen a breeder if her colony shows exceptional honey-gathering qualities.

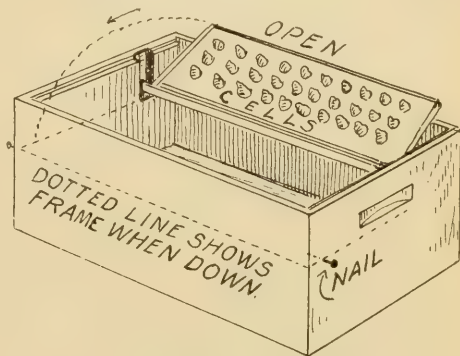
After honey-getting comes temper. At

yard No. 8 didn't we "beat it" double quick? Colony No. 4 was the mischief-maker. That queen did not reign long. She interfered too much with our work. The temper of the bees from my favorite queen was always even.

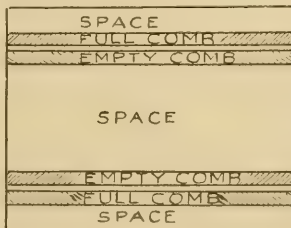
The drones, being the production of the queen only, are full-blood with the queen; the workers and virgins are half-blood, hence the drones should be the equal of the queen in color. I note the evenness of the worker's markings last. These are the index to the purity of the queen's mating.

THE EQUIPMENT.

Take a shallow super; make two saw-cuts at each end, as shown, and chisel out the side wall between the saw-cut, and level with the rabbet for a depth of about 2 inches, leaving 2½ inches below the frame. This allows the top-bar to drop in the slot,



and forms a pivot for opening and closing the frame. Two nails are driven thru the end walls as supports for the bottom-bar end of the frame. This allows the frame to be opened and closed like the leaf of a book, without removal from the super—a great convenience when said frame is covered with a big cluster of bees. It takes very little smoke to uncover the cells sufficient to examine or cut out.



Having previously inserted our combs into the breeding colony, we are ready to prepare for cell building. It is easier to

handle combs than hives, therefore a fresh hive is placed on a new stand, and the combs and queen that we do not want are carried to the fresh hive, leaving, besides the bees, two full combs of honey and pollen, which, along with two empty combs, are arranged as shown in the diagram. For vigorous cell-building use as many field workers as nurses. They bring in pollen, and add to the general air of prosperity. Add more empty combs as needed.

If all the bees are taken it would be best to cage the queen, remove a strong stock from its stand, and place the beeless hive in its place. The flying bees coming home make a colony, and care for the beeless brood. Later in the season the preceding colony of cell-builders can be utilized to care for the brood and queen, so that, while the fresh bees produce each batch of cells, only one colony is actually in use during the whole of the season.

PREPARING THE COMB.

Selecting a comb full of eggs, we use the cap of a fountain pen to break down the walls joining the cells, leaving the cells we desire standing with their eggs intact. A match-stick will remove the broken walls and damaged cells, leaving no opportunity for the bees to build two or three cells together. It is best to prepare the comb first and place it temporarily in a super; or if the colony is ready first, lay a comb of brood in place till the cell comb is ready.

After the cell-building comb is in position a strip of cloth or canvas the size of the frame should be laid on the frame, and over the canvas a sack which is tucked in and reaches down into the lower hive. The sack forms a connecting wall between the flat comb and the upright combs below. The center space gives the big cluster room.

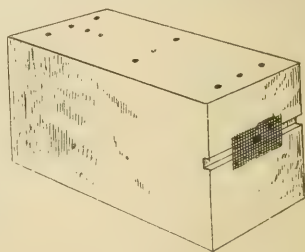
Finish the work by marking the hive on the back as follows: 16/5 A, cells due. This means that the colony was prepared May 4 from breeder A. This allows the cells 12 days, and allows a margin of time for the apiarist to use the cells.

Mishaps will happen sometimes, and it is well to examine. The cluster may not form, or all the eggs may be missing; also, if not enough cells are started, another colony may be started cell-building.

THE NUCLEUS HIVE.

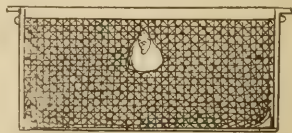
In this climate one needs no heavy double-walled hives for the nuclei; and as lightness and convenience are important factors I looked around to secure a box needing the least work to convert it to a nucleus hive. Apple-boxes fill the bill, one end making the two nucleus hive-ends 5 inches wide, allowing room for a three-frame nucleus. No dummies are needed when only one or two frames are used.

One of the difficulties of nuclei is robbing. The Dr. Miller wire-cloth tube entrance is excellent, but not convenient in use. Hence we employ the same principle. Our nucleus entrance consists of a $\frac{3}{4}$ -inch hole bored in the center of one end, then a groove cut half way thru the end. Over the center is two-by-three-inch screen. This makes an entrance away from the ground—a miniature alighting-board at each end, and the passageway protected from robbers. When desired a bit of soft paper or cotton will close the ends, leaving a screened entrance for ventilation.



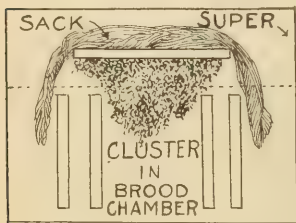
MAKING NUCLEI.

If the brood has been spread according to the plan I gave on page 1041, Dec. 15, 1915, and repeated every two weeks, the making of nuclei is simple. When bees are flying freely, and most of the field workers are away from home, open a stock with as little disturbance as possible, taking out a comb of brood and all the nurse bees, also a comb of honey and bees. This should be sufficient to form a nucleus. Close up the entrance with soft paper, as previously mentioned, for one or two days. By this method nuclei can be made in the same apiary. The cells, when cut from the cell-building colony, are inserted into the nuclei by cutting out a piece of comb and pressing the cell into the apex, leaving the space below for the nurses to crowd around. At the same time a cell so placed is neither crushed nor torn by crowding against the next comb.



THE RECORD.

The nucleus record, as given in a previous article, I have slightly improved. The want and spare columns are the same; the simple



terms cell, virgin, queen, are the same except that three grades are added for the queen—extra good, good, and medium.

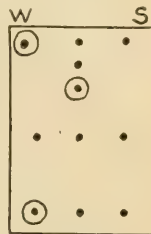
The queen is judged by looks; and experience enables the apiarist to detect the appearance of an extra-good queen. The nuisance of carrying around blocks, and the wind blowing the same way, is done away with by the use of harness rivets, which can be carried in the

<i>Want</i>			<i>Spare</i>		
<i>Bees</i>	<i>Extra good</i>	<i>Bees</i>			
	<i>Good</i>				
	<i>medium</i>				
<i>Stores</i>	<i>Virgin</i>	<i>Stores</i>			
<i>Cell</i>	<i>Cell</i>	<i>Cell</i>			

pocket, and as many used on each hive as required. Small holes are bored at the points indicated, and the rivets pushed into the holes.

The diagram would read as follows: The two rivets shown in the want column indicate bees and cell wanted; the rivet at medium, queen combined with cell wanted, shows a poor queen; hence cell wanted because the queen is too poor, but she will hold the colony in shape if no cell is available. At the same time it is known there is a queen to look for and kill before inserting the cell. Furthermore, more bees are required, the nucleus having become depleted thru delayed mating.

Heber, Cal.



SUPERS OF HONEY ON A TOBOGGAN SLIDE

BY G. E. PHILBROOK

During extracting time I run my supers in and out of the honey-house on slides or tracks made of 1 x 4-inch material on edge. These pieces are set in the side of the building about 3 feet from the floor, and they project the width of one super outside and the width of two supers inside. A thin strip is nailed outside the track so that the supers will not run off. I grease the tracks with tallow, so that the supers will slide easily.

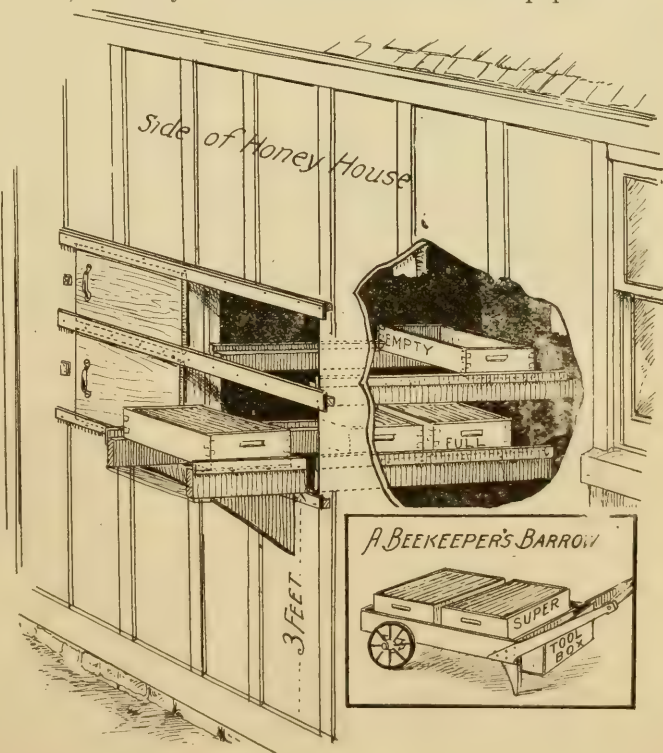
Another set of slides is put in just above the first one—this for the empty supers. These do not project outside the building.

Each opening is provided with a sliding door on the outside of the building. When bringing the supers in, it is the work of but a moment to slide in the doors, push in the full supers, and pull out the empty ones.

I use a honey-cart that is very convenient. I make a box the size of two supers set side by side, and per-

haps 9 inches deep. Eight inches from one end I locate the axle on which are wheels 18 inches in diameter. The legs and handle go on the other end of the box.

I line the bottom with tar paper to catch



any dripping of honey and wax. Between the handles there is room for a tool-box.

HELPING OUT THE BEE-ESCAPE.

To hasten the work of the escape-boards I put them on about four or five o'clock in the afternoon; and then a little later, just before dark, I remove the covers of the

supers for a few minutes to let the bees out, at the same time blowing a little smoke in the top of the super. When the covers are replaced, so many of the bees have escaped that the few remaining are surely out by the next morning.

Lakeside, Cal.

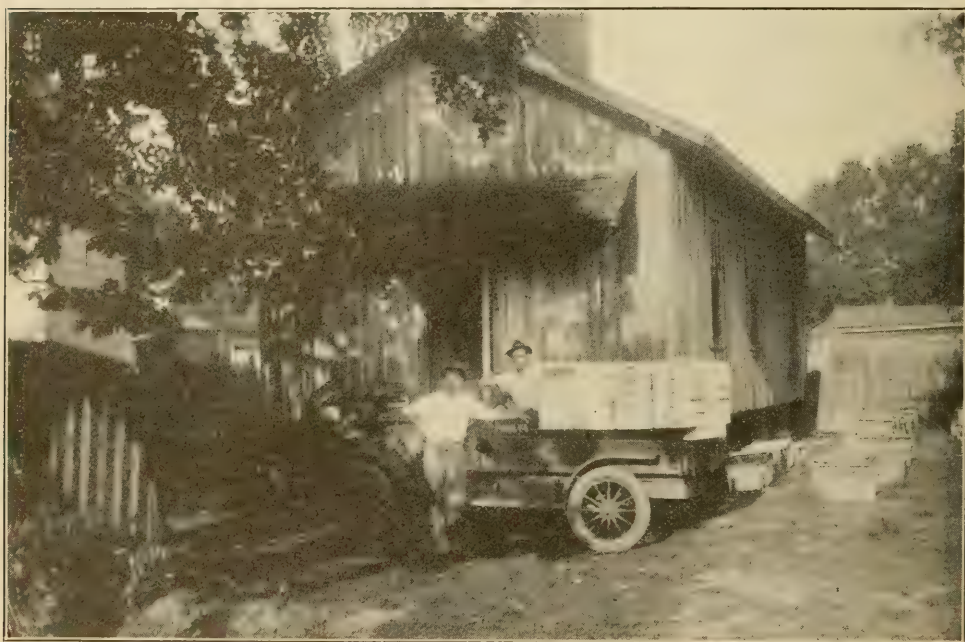
"FORDING" COMB HONEY OUTYARDS

BY H. O. CRAMPTON

My honey-house was used by the federal soldiers during the Civil War as a store-room and supply-house, and was the scene of much fighting, so the old citizens here tell me.

year. It is just coming in bloom now, May 22, and the bees will be working on it well in about a week if the rains don't come about that time.

I use a Ford to visit my out-apiaries. I



Historical honey-house used by H. O. Crampton, Columbus, Miss. During the Civil War the building was used by the soldiers as a supply station.

The bees shown in the picture are to be transferred to an outyard, having been brought to town temporarily until a better location could be found. Melilotus is our main honey-plant, and it looks fine this

am working only for comb honey this season. My helper and I do all the work at the yards. I have 84 supers with half sheets of foundation to take to one yard.

Columbus, Miss.

BEE-CLUBS FOR SAN FRANCISCO BOYS

BY RALPH R. BENT

For the past few years considerable work has been done by the United States Department of Agriculture and the University of California in organizing agricultural clubs

for boys about the state. Every country boy has the opportunity of growing his acre of corn or raising his litter of pigs. But with the city boy it is different. It is im-

possible for him to get a plot of ground upon which to exercise his latent abilities in this direction. He can, however, keep bees, as they require but little space and may even be kept upon roofs of buildings if necessary.

The first beekeeping club for boys in San Francisco started with but five members. Under the leadership of the writer they secured a room in one of the San Francisco churches. Three of the five boys each purchased a hive of bees, and the other two looked eagerly forward to the time when they too might have some. Thus the first club was organized.

This club has now about forty members. The boys have their own officers, and hold regular business meetings. After the business is over, the leader or some experienced beekeeper, or other person with a practical knowledge of the subject, gives a talk on beekeeping. Some evenings the entertainment consists of a live-bee demonstration. At other times they have the use of a stereopticon and set of slides to illustrate lectures on particular phases of the subject. The motto of the club is, "A Million Things to Learn about the Bee."

After the program of the evening is over, the boys supply themselves with honey to sell. This honey is put up for them by one of the local dealers and bears their own label. This honey they sell at a good profit, the proceeds from which go toward additions to their bee equipment. The meetings close with honey refreshments. Parents,

being always welcome, often come to visit the meetings.

On Washington's birthday, Feb. 22, all the boys, as well as all adults living about San Francisco Bay who were interested in beekeeping, met at the writer's home in Sausalito. This is a little town at the foot of the hills in Marin Co., just across the bay from San Francisco. Here they held a bee-club picnic or field day. Every one brought his lunch and prepared for a thoroly enjoyable time. Live-bee demonstrations, lectures, and practical working explanations of the hive and fixtures constituted the program of the day. Those who were interested started a collection of the honey-producing flora of that part of the state. A large number of people who had never seen the inside of a hive before had the opportunity to work practically with the bees and handle the frames. Efforts were made to organize better the clubs in the various towns, and make it possible to have a boys' union apiary, located in San Francisco.

As time goes on and this work grows, many clubs will be organized about the country. The greatest problem will be to find capable leaders who are willing and anxious to give a part of their time to such work. It is hoped that these clubs will some day extend into the schools and institutions of learning in our country to such an extent that young people may come more and more to learn of the mysteries of nature thru these wonderful insects.

Sausalito, Cal.

THE ROLE OF INSECTS AS CARRIERS OF FIRE BLIGHT

A Reply to the Criticism, page 384, May 15

BY PROF. H. A. GOSSARD

IN GLEANINGS for May 15 is a review, not of a bulletin published by the Ohio Experiment Station as your wording might lead your readers to suppose, but of a paper read by me before the Ohio State Horticultural Society; therefore whatever of blame may be attached to its publication must rest upon me alone, for no other official of the station is in any way implicated.

Now, a paper that gives rise to so many and such gross misunderstandings as you gather from it would certainly seem to need some additions or explanations to make its purport clear. You have gotten an entirely wrong idea as to my attitude of mind and beliefs regarding the entire question. The usefulness of the honeybee to the orchardist can hardly be called in question, no matter if it does carry blight; and the pre-

cise manner of the disease-transmission is yet less important if the bee is conceded to be a numerous carrier. The real question under investigation is, regardless of whether bees are or are not carriers, can they be so handled that they will prevent or reduce the damage incidentally caused by themselves and by other carriers of the blossom form of blight while performing the indispensable work of pollination? Since the honeybee is the only one among the pollinators that is subject to human manipulation for a definite purpose, it is the only insect in which a possibility inheres of being advantageously used for such an end. The mode or modes by which it transmits the disease may be helpful in determining the practicability of employing it for such use.

If I have any prejudice regarding the

status of the honeybee as a useful insect I must confess that, rooted in my mind only a little less firmly than the law of gravitation or of chemical affinity, is the conviction that the age-long association of the honeybee and of the fruit-grower cannot be dissociated as a permanent or general practice, on any account, without great and useless losses to all who make use of fruits or seeds or the plants grown from such seeds.

If the choice had to be made between the extermination of bees from the earth and the total sacrifice of the two species of fruits—apples and pears—most affected by blight, I confess that, were I consulted, I would at once give the decision to keep the bees and then makeshift with other fruits of which there are plenty in the world. The sacrifice of two or three species of fruits, however important, would seem to me of less consequence than the immeasurable damage that would ensue from the destruction of our most important pollinizer, and



The kind of swarm that always looks good. From Page Bros., Avon, N. Y.

the one subject to human control. I am not conscious of any other belief that might disqualify me for such an inquiry; and I regard this creed as legitimate, for, without being a scientific dogmatist, one must adopt at least a few broad and accepted principles as already proved, against which to measure the facts he accumulates or the theories he forms, to ascertain if they harmonize.

You make an inference that, if the hive should be found a distributing center for germs, the bee must at once be considered the very worst of all carriers, and seem to think the conclusion axiomatic. Now let us shift the viewpoint. I think that both fruit-growers and beekeepers alike agree that blossom-blight does not appear to a great extent until some time after the blooming season has opened, and that in some seasons, like the present one, it arrives very late or not at all. I am quite sure the hive is beyond all reasonable suspicion in the spring, because, so far as we know, the germ does not live in honey for much longer than 70 hours. If, therefore, the orchardist keeps blight centers from his own orchard by trimming them out, and puts a sufficient number of hives in the orchard before the bloom appears, will he not insure the earliest pollination possible, and have a larger number of fruits beyond the danger of blight before it arrives than he could otherwise secure? If the bees themselves carry it later, is it not the more necessary to have them present in abundance, while still clean, to do as much work as possible before the blight-wave appears? If, at the end of the blooming period, they should be carrying it more rapidly than at any other time, whether from flower to flower only, or in accelerated degree by adding distribution from the hive, is it not the more necessary that, as soon as the bloom arrives, there be in the orchard an abundance of clean bees to insure the earliest pollination possible of every available blossom before the blight-wave appears? Whether a removal of the hive at some stage of the work might be advantageous is an additional question. But is there not a possibility here of manipulating bees to the mutual advantage of both the beekeeper and the fruit-grower? Is it much of a paradox that the orchardist who trims blight from his orchard, and keeps many hives of his own instead of depending on his neighbors' bees, almost uniformly has a larger crop and suffers less than his neighbors from the effects of blight? I plainly stated in the paper criticised that I did not think any developments relating to the manner of distribution of blight would

change the status of the bee as a beneficial insect in the orchard, and still maintain that opinion. On the contrary, as suggested above, it seems to me the bees may be so manipulated that they will, to an important extent, reduce blight damage, regardless of any and all modes by which it is transmitted, either by themselves or other insects. Your conclusion does not appear to me to have been axiomatically correct at all. The above questions are frankly speculative and interrogatively stated. The paper you criticize was frankly speculative, and an "interrogation-point followed the heading, 'Is the Hive a Center of Infection?'" Much scientific work is first based on a theory which is later tested exactly as I wished to test this question. We have not yet taken the record on this season's work; but there would seem to be little likelihood of securing data, for there was almost no blossom-blight in our orchard. The question seems to me to be subsidiary—one on the side—and, however answered, not likely to injure either the keeper of bees or the orchardist. It seems to me that every bit of light we can obtain on this question is certain to benefit both classes, for certainly the mutual dependence of our fruit-trees and bees upon each other is too well established to be shaken by such a comparatively trivial question as to their method or methods of transmitting a single disease, affecting only a few species of fruits, and which has been with us for scores of years without exterminating these fruits, and under conditions that strongly suggest that said fruits can be partially freed from blight effects by the intelligent use of bees. If I erred in raising the question so early, as to the hive being concerned in the transmission, it was because I, like you, was relying too much on what seemed to be axiomatic reasoning, but I do not understand how anybody could conclude that I supposed I had answered the question, and I do not see how I could wish to answer it finally one way more than another, since my opinion as to the usefulness of the honeybee would hardly be modified at all by the result. We are doing, and have been doing for three seasons, many of the things you criticize us for not doing, but have not reported them because somebody else reported them first, and the results were, therefore, already in print. The paper in question was not intended for wide circulation, and no attempt was made to give a balanced treatment of the entire subject. The fruit-growers simply wanted to know if we were trying to advance somewhat the knowledge already possessed about the disease, and if we were making any

progress beyond what was already known to them.

In some places in your critique you seem to me to be unfair in the extreme in the impression you give your readers as to the character of the paper read, as in this:

"These facts should satisfy any prejudiced defender of the bee, to whom Professor Gossard jokingly gives the name 'bee monomania.'"

The paragraph in my paper from which you quoted read thus:

"If any quarantine monomania proposes to banish bees to restrict the spread of blight, I favor immediately incarcerating him in a cold-storage plant and lowering the temperature until he can dream of nothing except fragrant flowers, humming bees, and summer weather. The bee monomaniac who will believe nothing at all adverse to his pets is still nearer sanity, in my opinion, than the extremists who suppose that the Creator and all his creatures and laws can be regulated by legislative enactments."



Two swarms clustered together on a $\frac{1}{2}$ -inch limb of a peach-tree. Sent by Daniel Whitmer, South Bend, Ind.

The paper was frankly and aboveboard speculative, and I am sure it was not misunderstood by those who listened to it, as the discussion following the reading proved. However, your criticism of some other phrases and expressions in the paper are quite justified, for I perceive, now that my attention has been called to them, that they might be construed to imply a wish to obtain certain results, when I meant we were merely seeking to learn if certain facts would be obtained which would agree with the theory interrogatively propounded. I hope these slips of language, due to rapid writing of a paper, against time, for the Horticultural Society, will be interpreted as they were meant and not as they were written. In your conclusion you express the

hope that I "will not drop the problem until I have found out how much truth there is in the theory." Thank you most heartily for the implied confidence that I will give an honest report. I esteem your belief in my integrity much more than I would your confidence in my scientific activities, tho, of course, I should appreciate both. All the work has been so checked, and will continue so to be, that I could not give a wrong report, even if I were so minded.

May I ask if you will give space in your paper for this somewhat extended reply, in justice to the other officers of the Ohio Station, as well as to myself, and I shall much appreciate the kindness.

Wooster, Ohio.

COMB-HONEY PRODUCTION IN OUT-APIARIES

BY W. A. LATSHAW

About May 1 we go over all our bees to make sure that none lack for honey, to feed them up, to clip all the queens' wings, and to help out the weak somewhat by giving frames of brood and bees from the stronger colonies. This we keep doing until we have them fairly well equalized, and shaped up in good condition for the raspberry-clover honey-flow, which begins here about June 9, and with it swarming starts with a vengeance.

With the swarming season at hand it becomes necessary for us to visit our bees more often, especially when it is at its worst; and this we do, making the rounds once each week to each out-apiary to give more storing room, and to take off the finished comb honey, and ease and grade it, and to prevent and control the swarming.

Now, our method of swarm control and prevention is very simple. During the height of the swarming season we go over all the colonies and cut the queen-cell out of all that are preparing to swarm, once each week, or every seventh day. As the swarming season advances, and when the swarming mania begins to wane, it is necessary to go over them for swarm-cells only once every ten days; but during the worst of the swarming we have found it best to cut cells once each week, especially as we have to make the weekly visits anyway, to take care of the finished comb honey, and to give more room; for when swarming is worse, honey is "worse," provided your bees are prevented from swarming, and they will be if you have the queens' wings all clipped, and make a careful job of the cell-

cutting, being very careful not to miss a single one.

Only the hives that are preparing to swarm are opened during our cell-cutting rounds, and this we ascertain by turning the hives one after another off their bottom-boards (which are loose) and smoking the bees back off the lower half of the brood-combs, so as to be able to see the queen-cells, if any, that have been started; and only such as have queen-cells started are opened, it being necessary only to turn the rest back on their bottom-boards, and to proceed to the next. In this manner an out-apiary can soon be looked over for swarming, and the cells cut out, provided you have a big smoker and use plenty of smoke in the smoking-back operation. Another thing, don't be afraid to switch the hives around on their upside-down corner, or turn them upside down, if need be, to get the light so you can see down in.

If you do a good job of looking for cells and cell-cutting, and have your queens' wings all clipped, and do it regularly once every week or ten days you will be absolute master of the swarming problem so far as comb-honey production is concerned.

When we wish increase we make it naturally by hiving swarms that issue during our visits to the out-apiaries, or else we take two frames of brood and bees with the queen from the old hive, then place them in the center of the new hive on the old stand, and then set the old parent colony off on a new stand and give a ripe cell. This throws the working force mostly with the two frames of brood and bees and queen on the

old stand, and the brood mostly with the old parent hive on the new stand.

All sections are started, supplies worked up, and hives nailed and painted, at the out-apiary honey-houses where they will be needed; and in the same manner the honey is scraped, graded, and cased ready for the market at the outyards. Most of this work is done by our crew of helpers which we take from yard to yard during our weekly visits, some doing the shop work, while the rest are busy with the bees, tho we sometimes find it necessary to make special trips to work up supplies. We use a Ford auto to go from yard to yard and to do our light hauling with, and find it a great convenience.

As soon as the honey crop is over, which is about the middle of August here, the escapes are put on, and the supers stored

away in the honey-houses until next season; and then if any of the hives need repainting, they are repainted at this season of the year. We try to see that all colonies are headed with good queens during July and August.

All colonies are fed for winter between September 15 and Oct. 1, and we make sure that every colony has an abundance of stores to last until fruit-bloom the following spring. In order to make a certainty of this matter we have scales rigged on a wheelbarrow, and go down the rows and weigh every hive, and mark the weight on the back of each. Then each is fed so as to contain 25 lbs. of stores.

Our bees are all wintered in the cellar, and are hauled to and from the out-apiaries on sleds.

Clarion, Mich.

SHOULD THE POETRY BE SEGREGATED?

BY GRACE ALLEN

[By an oversight the following protest or "retort courteous" referred to by Mrs. Allen, p. 428, June 1, was held over, tho written just after the appearance of Mr. Baldwin's reference to Dr. Phillips' views of poetry as given in *The Beekeepers' Review*, page 89, March 1.—Ed.]

And now see what has happened! A great scientist—even our very own beekeeping scientist, Dr. Phillips, so universally respected and so earnestly studied—has said that we ought to keep our poetry on a separate shelf from our practical working prose! And then Prof. Baldwin, for all the courtly (and thoroly appreciated) bow with which he ends, says in effect, "Aye, aye, sir!" But now aren't you glad, all of you, that God doesn't run the universe on that separate-shelf system? Had he felt it necessary or wise to divorce beauty and poetry utterly from practical everyday work and necessity he doubtless could have made some satisfyingly prosy fruits without the scarlet of the apple or the gold of the orange or the poetry of green, sunlit trees, or the shower of fairy bloom in April and May. He quite surely could have caused the earth to bring forth some pretty sustaining and nourishing meal and flour for our bread without the poetry of fields of grain swaying and rippling in the wind and shadowed by every passing cloud. He need not have put the scarlet on the tanager's wings nor the song in the throat of the mockingbird, nor let the bees hum so rapturously in June. And he could doubtless have skipped the rainbow altogether. But he did not. He spread beauty all around over our common fields and hillsides, made birds to sing even while we labor, and shot all our days thru and thru with shining light. Merely to make a

practical day and night, need the sun come up and go down again in such a trailing glory? Even the land and the water God has not kept completely apart, in dread of that mud referred to as the result of their mixing; but he makes growth and even life itself quite dependent upon the combination, for the dry prose of the dusty earth needs always the poetry of living water on it and in it and thru it to bring growth and flowering and fruit.

Or to be a bit more scientific, as perhaps the occasion demands, when the ancient nebulous mass cooled and developed and grew into this world as we know it today, not even evolution in the process or the study could ever separate the poetry of living growth from its prose. There are no separate shelves in life nor in human hearts; for over all this fair earth people thrill to sunsets and babies' eyes, and orchards in bloom and stars in the sky at night, while women everywhere sing to their children, and men go even into battle with a song on their lips. Are you not glad it is so, dear people, scientific and unscientific? And you who love bees, will any one of you handle your frames less carefully or introduce your queens less skillfully, or sell your honey less profitably, or go into winter quarters with an ounce less packing around your hives, because you have been a "great lover" of the poetry of swift silken wings shining in the sun? or because you have let

the grinding wheels of the day's prosy routine pause a bit while you catch the rhythm and beat of the great heart of things? or because you let yourself drift out for an instant into the infinite depth of wonder

and dream and poetry and prayer? I find that hard to believe, because of my faith, my many faiths, in beauty and poetry and science and people and God.

Nashville, Tenn.

A SIMPLE METHOD OF ADVERTISING HONEY

BY MAURICE E. MILLER

I read with interest Walter S. Pouders' article, p. 151, Feb. 15, on using stamps to raise money for the purpose of advertising honey. That idea works very well for the Red Cross Society, because people are willing to support a benevolent institution; but I fear that, if tried in the interest of honey-producers or any other self-supporting business, the results would not pay for the trouble.

I have before me a form of advertising which I believe would work admirably for bringing attention to honey, and attention spells sale. A certain concern manufacturing roofing makes up a double letter-head, the two inside pages of which are filled with catchy advertising regarding their product. These are printed by the thousands, and distributed in lots of a few hundred each among the dealers handling their goods. These dealers have their own regular form of letter-head printed upon the first page, and use them in their daily correspondence.

To me this idea presents unlimited opportunities for advertising if used by honey-producers. In the first place these double letter-heads with the inside pages printed with catchy information, such as the food value of honey, uses of honey in cooking, interesting facts in regard to the cleanliness

of honey, etc., could be produced in large quantities for a nominal sum. Judging by the present price of a good grade of bond paper I believe these could be produced for four or five dollars per thousand, which is little if any in excess of what most beekeepers have to pay for their letter-heads in small lots. This would permit them to be distributed among a vast number of people, but would not be the limit of possibilities of this "double-purpose" letter-head. Beekeepers wishing to advertise still more could furnish these in desirable quantities to dealers handling their goods. Dealers would be glad to use them, as the only cost would be the printing of their own form on the first page, and a sale thru their use would mean a profit to them as well as to the beekeeper.

I believe that this idea, if tried out, would prove to be the most effective method possible of advertising without raising an enormous sum, such as would be necessary to float a campaign of extensive magazine advertising. Each beekeeper who uses these letter-heads and distributes them would be independently assisting in a co-operative plan that would spread thruout the country, and each would receive results in proportion to the effort he extended.

Addison, N. Y.

MY WAY OF HEADING OFF SWARMING

BY J. P. BLUNK

The easiest, quickest, and surest way to head off swarming is the plan I am now using, which I think has all the earmarks of the Davenport "swarm secret." Prepare a hive with an empty comb to catch the pollen, a comb of suitable brood from which queens can be reared, and fill up the rest of the space with dummies. Put this hive on the stand of any strong colony that is preparing to swarm, with a couple of supers on top. Put on a good wire escape-board, and on top of all set the strong colony without its bottom-board. The flying force will all go downstairs in twenty-four hours, and so few bees will be left in the original hive that they will tear down

all queen-cells which might be on the combs—the queen, of course, being left in the old brood-chamber on top.

The queen will keep right on with her laying. In fourteen days take the old hive off, remove the queen, or leave her, as desired. If one desires to requeen, now is the time. Put one of the queen-cells built in the lower story in the old hive and set it on a new stand. Contract the entrance and remove all cells except one from the new colony. Supply frames of foundation, put on more supers, and the job is done.

If no increase is desired put the combs in the prepared hive below back in the old brood-nest, after removing the queen from

the latter. This will not take long, as the bees are scarce, as above mentioned. It is necessary to remove all queen-cells but one on the frame of brood in question.

If desired, the colony may be made up from two colonies. Set the prepared hive on top of the strong colony; place the escape between the two upside down to run the bees up into the prepared hive. Close the entrance of the lower hive; slip the upper prepared hive far enough ahead on the escape-board to provide an entrance

over the old one below. Put on a good supply of supers, then another escape on top of the super, and finally put on another colony without the bottom-board, as mentioned above. Remove the old hive in forty-eight hours, or leave it longer as desired. The flying force is now in the center hive.

Mr. Davenport was shaking to head off swarming when he discovered his plan. The reason he never had a failure was because bees without a queen will never swarm.

Moorland, Iowa.

TEN-FRAME HIVE WITH SUPER MAKES IDEAL BROOD-NEST

BY L. K. COLE

J. J. Wilder's plan, page 454, June 1, is so near the plan that I use that I wish to add my experience. I have done a great deal of experimenting in the production of both comb and extracted, using a single ten-frame Langstroth body, a double body (and contracting to one body at the beginning of the white honey-flow), a single body, and one shallow extracting-super. I have also used the Danzenbaker hive and system in the production of comb honey. By repeated experiments year after year during the past twelve years I find that for this location a ten-frame Langstroth hive and a shallow extracting-super, each containing five Hoffman frames, a regular division-board on the east side of the body, preferably, and a $\frac{7}{8}$ -inch division-board with spacing strips on one side, all held together by two super springs, make an ideal brood-nest for this locality. One has full control of all colonies at all times. The honey can be put just where it is wanted, and the brood-nest is large enough for the most prolific queen. The division-boards on both sides give plenty of ventilation; and by using the $\frac{7}{8}$ board with the spacer, a little more room is provided for easy removal of the frames.

In the extracting-supers I prefer full-depth frames, spaced wide, by using only eight frames to the ten-frame super.

In producing extracted honey, all hives are looked over in the spring and graded good, fair, and weak. Each colony in grade 1 is given a shallow extracting-super, and in one or two weeks (depending on the weather) the colonies in grade 2 are also ready for the supers. The colonies in grade 3 are worked in different ways to get them built up to full strength.

When nearly full of bees, brood, and honey, the colonies of grades 1 and 2 are given a set of extracting-combs with an ex-

cluder between the brood-nests and super, whether much honey is coming in or not, as the super forestalls any preparation for swarming.

When the first super is perhaps two-thirds full, it is raised up and an empty super placed underneath, next the brood-nest. By tiering up in this way, especially since the queen has an abundance of room for egg-laying, one practically has control of swarming.

The upper portions of the brood-chamber (that is, the shallow super) can be manipulated in any way with any other colonies needing help, with stronger colonies.

In the fall, if the fall honey-flow is not suitable for winter stores, the shallow supers may be left in place until all the honey supers are removed and the honey-flow is over. Then this shallow super, which is the upper part of the brood-nest, may be removed. Under such conditions the deeper part of the brood-nest will not, as a rule, contain enough honey for winter, especially in case of colonies that have good queens. Sugar syrup can then be fed. If stores of honey alone are desired, the shallow super can be placed under the deep one long enough before the fall honey-flow is over so that the deep brood-nest will contain at least 30 pounds of honey (35 or 40 would be better, perhaps). Then when it is time to prepare the colonies for winter the shallow supers can be removed, as they will contain very little honey.

In a good year I have produced as much as 250 pounds of extracted honey from a single colony; or in case of colonies run for comb honey, 202 pounds, with plenty of honey left over in each case for winter. I am sorry to say, however, there are too many seasons when the production of fancy comb honey is out of the question.

Stanton, N. J.

Heads of Grain From Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

They say the reason the patient camel has such an ugly disposition is because they have never found the right word to say to him, and about the time you think you have found it for the lees you discover that they've changed the countersign.

Contentment.

Sitting in my sunny kitchen
With my simple lunch,
Sometimes bread and milk and honey,
Sometimes fruit to munch,
Straight across the light I'm looking
Toward a queer old shed,
White, except two nut-brown doorways
And the roof o'erhead.

There across the ragged roof-line
And the doors below,
Back and forth the bees go flashing,
And I love it so!
Then I think of formal luncheons
With their chit-chat ways
And thank God for bees and kitchen
And my home-grown days!

Nashville, Tenn.

Grace Allen

Black Italian Queens the Mother of Well-marked Italians.

I have an Italian queen that is of good color, and produces uniform three-banded bees of a good yellow color; but every queen reared from her is as black as coal. Can you give a reason for it? Did you ever see such a case? I bought her for a breeder and

have reared several queens from her, and every one is black. Her bees are uniform and gentle, and hustlers. Her sisters give nice yellow queens and bees, her mother was a five-bander and a good breeder. I have not had time to test any of these black queens yet, so I can't tell what they will do. But they are as lively as crickets.

I have also struck something new. I have a colony that will accept artificial cells all right in large numbers, but will not accept the royal jelly and larvæ put into them. Why is that?

Gimlet, Ky.

W. L. Lovejoy.

[There is a great difference in breeding-queens. One queen that will produce uniformly nicely marked Italian bees will also produce queens that are quite dark, some of them black. We have sometimes had to reject an otherwise good breeding-queen because her queens were too dark to suit the trade. One of the blackest queens we ever had produced very nice Italian bees, very gentle, good workers, having three yellow bands, altho the third band showed rather indistinctly.

Sometimes a queen-breeder is a little careless in his treatment of the cells for the queen. If ripe queen-cells are exposed to a chilling atmosphere, the queens, when they hatch out, will be dark, sometimes almost black.

Some years ago we had two different queen-breeders working for us, and both breeding queens from the same queen. The queens that one breeder reared were black, while those of the other were light-colored. When we came to examine into the causes we discovered that the man who was having the black queens was careless in the handling of his queen-cells. He left them exposed until they became partially chilled. After we cautioned him he was able to get as bright-colored queens as the other breeder.

We believe you will find that the black queens will be as good as any that you ever had for actual work; but if you enter into the business of selling queens you will find the trade will not take these dark ones.

In relation to the last question, possibly there was something wrong with the royal jelly. Perhaps it was too dry. You should get it of about the right consistency. We know of no reason why a colony should reject queen-cells containing royal jelly unless the royal jelly itself was not quite right. —Ed.]

Sealed Brood Only for Cell-building Colonies.

The writer was very much interested in an article which appeared in the May 15th number of *Gleanings* entitled "Queen-rearing for the Beginner," by J. E. Jordan. He brings up one interesting point on which I should like to have some additional informa-

tion. We refer to the idea of taking one or two strong colonies, dequeening them, and using them for starting queen-cells and for drone hives during the whole season. This is a good idea. We have followed the practice described in the A B C and X Y Z of Bee Culture, and have given queen-cells to a colony just made queenless, but there is some difficulty in keeping the queen in some place until it is time to return her to the hive again. We have had queens killed repeatedly when they were put on a frame over some other colony. We used a queen-excluder between the two hives, but it seems the workers killed the queen just the same. We found that it was better to put the queen in a hive by herself with one or two frames of brood. In this warm climate we can do this without any difficulty. We keep raising queens right thru the season, and that means making various hives queenless at different times. We find, however, that taking out queens and returning them again to their hives (they are not kept out long either) impairs their efficiency. We find that they do not live as long as they ought to when they are taken out of their hives repeatedly or even twice.

Therefore Mr. Jordan's idea of using some queenless colony during the entire season makes a strong appeal to us. Before adopting it, however, there are a few points which we don't quite understand. Mr. Jordan says, "These colonies must be kept well supplied with brood in all stages." We cannot see how he can get the bees to start grafted queen-cells in a hive that has any unsealed brood in it. We have found that the bees are much more interested in starting queen-cells on any frame where there is some unsealed brood rather than fill out grafted cells, so we are anxious to know how Mr. Jordan gets his bees to fill out his grafted queen-cells under these conditions.

We should also like to know if he has not been troubled with laying workers in a hive that is kept queenless for any length of time, even tho it is kept well supplied with brood.

San Juan, Porto Rico. A. W. Kuenzli.

Our Mr. Pritchard replies:

San Juan, Porto Rico. A. W. Kuenzli. V
over a strong colony with a queen-excluder between would be sure to result in the killing of the queen. But if a piece of wire cloth is used instead of the queen-excluder the queen may be kept several days in good condition. Having brood in all stages is a mistake. Nothing but sealed brood should be given to these colonies.

We do not like the plan of keeping colonies queenless all the season. Fertile workers are very apt to get started. We prefer to make a colony queenless and leave all their brood with them. At the end of six days, destroy all the queen-cells they have started; then graft into them every day until the brood is all hatched. Then we give them a laying queen. These colonies get

back to a normal condition in a few weeks, and go thru the winter in good shape. If grafting colonies are kept queenless all the season they are not worth wintering.

A Swarm that would Not Stay Hived.

Here is a swarm that I hived twice last summer, but the bees refused to stay where they belong. The third time I found the queen and caged her, and shook the bees upon the frames, and that time they stayed.

St. Paul, Minn.

A. W. Aamodt.



A bunch of rebellious bees that did not know when they were well off.

A Half-starved Queen Received by Mail Run Directly into a Hive.

The last week in May I took one brood-comb and queen and put it in a new hive, and requeened the old colony having the remaining seven brood-combs. The new queen was accepted, and allowed to stay four or five days, and then, to my surprise, when looking to see if she had any brood started, I found no brood, but two queen-cells, evidently built from young brood of the old queen. I cut out these cells, but failed to find the new queen, which I had seen three or four days before.

A second queen came in by mail late one afternoon. I put her away over night, and when I looked at her the next morning I

found a couple of dead bees stuck in the opening of the food-compartment of the cage. Most of the rest of the bees had starved except the queen and a few bees whose lives I saved by feeding honey at once.

There seemed to be only one thing to do—to introduce the queen at once, even at the risk of having her killed. I put a queen-trap over the entrance, took all the frames out, shook them on the ground so that the bees would have to sift thru the trap in going back into the hive, and, as I expected, found no queen. On one of the combs from which I had shaken the bees I put the half-dead queen. Several times the few remaining bees on that comb made a rush for her; but I blew a little tobacco smoke on them to keep them away and held the comb in my hands about ten minutes, then placed the comb with the queen in the hive and finished shaking the rest of the frames.

Four days later I opened the hive and there found the queen in good condition.

Brooklyn, N. Y. F. Duesterwald.

Well-soaked Ground in the Fall Insures Clover Honey Crop.

Following a long wet cold spell, with but now and then a working day for the bees, warmer days have set in; and with oceans of white clover on every hand our honey-makers are reveling in nectar. It was predicted by a writer in *Gleanings* that the setting-in of winter with well-soaked soil would insure a crop of white clover, and more—that it would yield plenty of honey. The beekeepers of central Wisconsin may well rejoice, for that prophecy is being fulfilled; and, altho the weather is not as yet ideally warm, the bees are gathering honey fast and furiously.

The prospect now is that, with the warmer weather we have reason to expect, and an occasional rain to keep the white clover flourishing, another bumper crop of honey appears very likely.

Manawa, Wis., June 25. E. E. Colien.

Held up and Killed.

My apiary contains 120 colonies of bees in two rows six feet apart, and hives 16 inches between, all resting on 2 x 12 planks set edgewise. At one end is my bee-supply and work-house, which I sleep in during the busy season.

I had just put on my first supers, and some were partly filled, when one morning, just before daylight, I was awakened by what I thought was a mouse trying to eat its way into my shop. I got up, but the gnawing still continued. I opened the door, and not over eight feet away I saw a skunk with both front feet on the alighting-board, his head turned to one side, and nose close to the entrance; and as I watched him he would raise his head and one foot, and scratch on the hive a few moments, just as a mouse sounds when gnawing. The skunk then

would stick his nose at the hive entrance, and, I suppose, eat all bees which answered his early call. I drove him away into the sage brush and returned and got my gun and loaded it, as it is an old muzzle-loader. I opened the door, and not over twelve feet away was my morning caller. I set my lamp on the floor so as to get a good clear sight and fired. It took off his head; it was done so quick that he left no apologies. In the morning I found he had visited eight hives. I then set a coyote-trap and in a couple of nights caught another. I then put around my apiary a five-foot chicken-wire, and yet the skunks would get in by digging under, so I had to fasten the wire net down with spikes, since which I have not been bothered.

Hudson, Wyo.

Geo. E. B.

"Sweet but Pow'ful Sticky."

I note the reply of P. C. Chadwick, page 184, to A. F. Bonney, defending the mail clerks for their handling of honey in the mails. Mr. Chadwick is right—emphatically so. All honey, especially comb honey, shipped by parcel post, should be plainly labeled to show contents, and marked "outside mail." It will then be handled outside of the sacks, and, if properly packed, will arrive at its destination in good order. During the past winter I have handled two packages of comb honey that were in extremely bad order. Not only were the honey-packages in bad order, but everything else in the sacks was covered with honey—a sweet mess, but "pow'ful" sticky. One of the packages was about a dozen sections in a pasteboard box, nothing to show on the wrapper what the contents were, nor even that they were fragile. The other was a few combs in a tin cracker-box along with some dry goods—dry at one time, but not when I saw them—nothing to show on this wrapper either.

Such cases as these are what bring the parcel post into disrepute, and may cause the shipping of honey by parcel post to be forbidden by the Postoffice Department before we have had a fair chance to try it out.

When shipping honey by parcel post, pack it in a container that will be honey-tight under ordinary circumstances. Label it "Honey," and endorse on the wrapper, "To be handled outside of sack," or say "Honey, Outside Mail." The boys will know what to do with it, and 99 times out of 100 it will go thru all right. If in doubt as to whether it is properly packed, ask your postmaster about it.

I have put in ten years "on the rails," and am still at it on the Lincoln & Billings W. D., but find time to handle about 40 colonies during my lay-off periods.

Huntley, Mont.

Frank E. Clift.

How would it be if we had a label contest? I think it would be interesting to see the ideas of the beekeepers about honey-labels.

Chico, Cal.

R. Deimer.

Two New Ways of Introducing Queens.

Last season I used two plans of queen introduction that to me are new. Both plans have proven highly successful and satisfactory.

Of course my queens are clipped. When a swarm issues, the queen is caged; and if she is one that I want to supersede, I simply kill her and put another in the cage, lay it at the hive entrance, and, when the swarm returns, and about one-third of the bees have entered the hive, I liberate the new queen and let her run in with the swarm, and all is well.

When I have a queen in any hive that I wish to supersede I set the hive to one side and put an empty one on the same stand; then I take the combs from the old hive, one at a time, looking them over carefully; and when I find the queen I kill her and throw her away some distance so that the bees will not find her. Then I shake all the bees off the combs in front of the empty hive, which I have previously filled with empty combs. I also jar all of the bees from the old hive and carry it to the other side of the yard, after putting back into it the old combs and brood. Then I liberate my new queen on the combs of hatching brood, close the entrance, and leave the hive thus for one hour. At the end of this time all the bees in the new hive will be aware of the loss of their brood and queen, and will be running over the front and sides of their hive, in their eagerness to find a queen. I then remove this hive from the old stand and set the old hive and brood back again, open the entrance, remove the combs from the empty hive and shake all the bees in front of their old hive, just as they were in the first place. When they go in and find their brood, they seem to think that their queen is the old queen. It is not necessary to open the hive before the next two or three days after. The queen is introduced all right and they should be left alone.

Before liberating the new queen on the combs of brood I destroy all queen-cells, if there are any; and if the weather is cool at the time, I carry the hive in the house to prevent any possibility of chilling brood.

Union Center, Wis. Elias Fox.

Red-clover Bees.

I should like three-banded Italians that work on the red-clover bloom as those are the kind raised here. Please let me hear where I can get them.

Mrs. Mary E. Adams.

Ransomville, N. Y., June 12.

[There are some strains of Italian bees that will work on red clover; but as a general thing the conditions have to be somewhat favorable, so far as the season is concerned. When there is a drouth on, or when there has been backward or chilly weather, the corolla tubes of the red clover are enough shorter so that the bees can reach the nectar. When the clover is developed so that

the blossoms are large, the ordinary Italian bees do not get very much of the nectar; still, there are some strains that have a little longer tongue. See our advertising columns.—Ed.]

The El Paso County Beekeepers Organize.

The beekeepers of El Paso County, Texas, seeing the need of greater co-operation, met at Ysleta, Texas, on June 10 for the purpose of organizing. A very successful meeting was held, and the El Paso County Beekeepers' Association organized with Mr. W. J. Stahmann acting as temporary chairman, and F. C. Belt as temporary secretary.

Following a discussion of the need of such an organization, the following officers were elected: W. J. Stahmann, President; J. G. Saurenmann, Vice-president; F. C. Belt, Treasurer; Albert S. Blanks, Secretary.

A constitution and by-laws were adopted, and the resolution was passed that F. C. Belt be recommended to the State Entomologist as bee inspector.

Clint, Texas. Albert S. Blanks, Sec.

Sacramento Valley Beekeepers Organize.

A few of the beekeepers of this section met on the evening of June 7 and organized an association to be known as The Sacramento Valley Beekeepers' Association, with A. W. Morgue, of Durham, as President; J. A. Williams, Durham, Vice-president; F. M. Washburn, Chico, Secretary.

F. M. Washburn, Sec.

Chico, Cal., June 16.

Sounds Good for the Breeders.

I have bought queen-bees from several western breeders, one eastern, and one southern, and in every case have bought the untested queens with entirely satisfactory results. Every queen, I think, was purely mated. One was dead and one was a cripple when received, but these were replaced at once by the breeders.

Edgewood, March 20. W. A. Gridley.

Barbed Wire for Reinforced Concrete Hive Bottom.

Referring to the excellent plan of Mr. E. A. Harris on page 629, August 15, 1914, I beg to offer the suggestion that barb wire be used for the reinforcement. The barbs keep the wire from the surface, and the advantage of barb wire over smooth wire as a reinforcing medium is apparent.

San Juan, P. R. F. E. Hartwell.

Can you tell me of a better way than scraping to clean supers and fixtures? I use the Danzenbaker bodies and supers.

Ralph P. Smith.

New Garden, Pa., June 22.

[There is no better way to free supers from bee-glue than to immerse them in boiling water with a little lye so as to cut and remove the glue. You could use gasoline or alcohol, but that would be too expensive.—Ed.]

Dwarf Worker Bee from Small Cells.

I am mailing you a very small worker-bee. I have only once before in my life seen another like it. I have found that they hatch from a smaller cell than the regular size. The bees in drawing out their comb from a one-inch starter will start at several places in the length of the frame; and when they come together they have room for only a very small worker-cell.

This is my idea of the cause of the small bee I am sending you; but as your experience is much broader you probably might have a different cause for the dwarf bee. For the novelty of the thing I should certainly like to have a colony of these bees; but the only way I think they could be raised would be to make a smaller size of worker foundation. However, you may have a better suggestion to offer.

Lancaster, Pa., June 19. W. D. Sellers.

This was referred to Dr. E. F. Phillips, of the Bureau of Entomology, who replies:

[This bee proves to be a worker honeybee, apparently normal in every respect except size. Under certain abnormal conditions such dwarf bees may be raised in a bee colony. In the article entitled "Honeycomb" in A B C and X Y Z of Bee Culture, it is stated that "By making the cells smaller than ordinary we get small bees with very little trouble."]

Several years ago I experimented with the production of drones in worker-cells, and, as is well known, they are greatly reduced in size.]

A Pollen Ration Necessary.

1. Can bees raise brood that will produce perfect bees without pollen of any kind, providing they have all the sugar syrup and water they need?

2. If bees are fed sugar syrup when raising queens for the market, and they depend entirely upon this source of food supply, would it not be natural for the bees of these queens to depend upon the same source of food supply?

3. What object has a bee in life?

Meadville, Pa. A. B. McGuire.

[1. Bees cannot raise brood without pollen of some sort. Natural pollen from the field is a great deal better than the artificial pollen in the form of meal or flour.

2. No, this would not follow. The feeding of sugar syrup only takes the place of a natural light honey-flow, because the bees cannot prepare the food for the young queens unless they have honey and pollen, or syrup and pollen. Either one of them will answer an equally good purpose, altho the honey would, of course, be a little better.

3. We do not know that we quite understand your question. We may say in a general way that the bee has no thought of its owner. It simply has an instinct that impels it to gather nectar and pollen to take care of its young and to carry its colony

thru a period of the year when there is no supply of food from natural sources.—Ed.]

Are Bees Taxable Property?

When the assessor was around last fall I gave in my 50 colonies of bees, which was put down as personal assessment, with the understanding that I would not be taxed for them unless it is the custom or law of this state to tax bees; but now they have the bill against me, or it is included in with the other taxes. The commissioners meet on July 6. I want to go before them and try to get the bee part of the tax cut out; for if I start to paying tax on bees I shall have to keep it up as well as other beemen.

Of course, if it is just, and the custom to pay tax on bees or the bee industry, I would not kick on the tax (\$1.49 county and 32 1-3 cts. state). I understand the poultry business is not taxed here, and I believe that is one reason why bees should not be taxed.

H. C. Davis.

Upper Marlboro, Md., June 29.

[Bees are taxable property in most if not in every state in the Union, and we know of no reason why they should not be put on the taxable list like other property. If they are not taxable property they have less standing in law. You had better let the matter stand as it is. We know of no reason why poultry should not be taxed like other property. If chickens are exempt, bees should be also.—Ed.]

Sweet Clover in Pastures.

Mr. Crane is on the right track, page 836, Oct. 15, when he says sweet clover would be more helpful to beekeepers if grown in pastures than that grown for hay. Every sweet-clover grower I know cuts the crop twice a year just as the blossoms commence to be valuable for bee pasturage.

To get the best results, from the dollar-and-cents standpoint, sow the seed any time, then keep all weeds mowed down for the first six months. The second year as the crop comes up from the previous year's roots it should be let alone until some of the first seed is ripe. At this time half of the field should be cut for hay, and the hay stacked half and half, every other load with alfalfa, or clover, or timothy. This makes the hay better, and leaves the other half of the field for seed and bee pasture; and, besides, the bees will get nearly all the honey from the first half of the field cut, as it will come up again and blossom, and produce honey until freezing weather.

E. W. Benson.

Beatrice, Neb.

Has No Hands.

I have only a thumb—no hands, and I can manage six or seven swarms very nicely with the aid of my wife.

William Gardner.

Mechanicsville, N. Y., Dec. 11.

A. I. Root

OUR HOMES

Editor

Behold the Lamb of God, which taketh away the sin of the world.—JOHN 1:29.

He is brought as a lamb to the slaughter, and as a sheep before her shearers is dumb, so he openeth not his mouth.—ISAIAH 53:7.

Thinkest thou that I cannot now pray to my Father, and he shall presently give me more than twelve legions of angels?—MATT. 26:53.

The first of our texts has been one of my favorite ones ever since I began reading God's holy word understandingly. Who was it that called Jesus the Lamb of God? It was poor John who, later on, was persecuted and *put to death* "for righteousness' sake." The Lamb of God! what an expression! When God saw fit to send a messenger to this wicked world, what sort of messenger would humanity naturally suppose he would send? John terms him the "Lamb of God." A little lamb is about the meekest and most inoffensive of all God's creation. It has been the emblem of innocence ever since the world began. The lamb does not fight. It does not endanger anybody nor anything. When we speak of a disposition that is lamblike it is paying about as high a compliment as we can pay to a human being. Jesus was ushered into the world with this lamblike disposition—the disposition to be unselfish and to do good, in contrast to average humanity.

Just now it seems that thruout the whole wide world there is a division of sentiment. We have had it here on the pages of GLEANINGS. Quite a number of writers all the way from Sheldon (the author of *In His Steps*) down to others not so well known have counseled "non-resistance;" and I grant you there seems to be a tendency to go to extremes either way.

Just as I write, on the third day of July, there is a strong prospect of a war with Mexico; and the question is constantly coming up, "What would Jesus do?" A few weeks ago I copied a tract entitled "War on Christian Principles," and it brought forth much comment. We are just about printing 2000 more for the good lady who sent a sample—see page 460, June 1. Suppose we study the character of Jesus a little in order to decide better what he *would* do. A nephew of mine away out in Arizona takes me to task and quotes scripture to show that I should not be undecided. He says, "Not by might nor by power, but by my Spirit, saith the Lord of hosts." He quotes again, "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you." Just once, if I am correct, Jesus not only reproved

and rebuked *but drove* out wicked men. In this one instance the lamblike demeanor seems to have been changed to one of authority. He overturned the tables of the money changers, and said, "Take these things hence." He then added, "Make not my Father's house a house of merchandise. My house shall be called the house of prayer; but ye have made it a den of thieves." Strangely enough, those wicked men hustled out with their trade and traffic when he showed he could present them something besides a lamblike demeanor. Now, there is one other instance that is not exactly parallel, but I often think of it. It illustrates that, beneath that lamblike exterior, there was a hidden power that not only *defied wicked humanity*, but spoke peace even to the winds and waves. No wonder that his followers were awed and astonished as they said, "What manner of man is this that even the *winds* and the *sea* obey him?"

The question continually comes up, and is sent in to me, "Would Jesus, if he were here, indorse enforcement of law?" I think he would. Did he not say "I came not to bring peace but a sword"? And at another time he said, "I came not to destroy the law, but to fulfill." A. F. Foster said on page 377, May 1, that insane people would have to be taken care of; and I think abundant experience has shown that policemen, magistrates, etc., are needed in every part of the world. In some towns where there are no saloons one policeman might take charge of quite a large number of people; but for all that, it seems that one or more police are still needed. In our lynchings where mob rule takes the place of law, we have not only *one* crazy man, but it seems crowds get together where it would seem that a hundred or even more have gone insane and have to be restrained. What is our nation coming to if a crazy mob, and often a drunken mob, takes law into its own hands? In such cases it seems to me that even the Lamb of God which taketh away the sin of the world would authorize an armed force to insist on strict obedience to the laws of the land and on giving every accused person a chance for a fair trial. I saw a statement recently that quite a number who had lost their lives by lynching were proved afterward to have been *entirely innocent*; and this came about because the poor victim had no chance to explain things and defend himself. May God help us to do away with lynching, not only in the far South, but everywhere else.

The last one of our texts makes reference

to the sin of the world. Well, the most striking illustration of the depravity of the present age I clip from the *Independent*. I have put on a head of my own, as you will notice.

COSTS \$10,500,000; WAS SIX YEARS IN BUILDING; 1000 MEN WERE ABOARD OF HER, AND SUNK IN SIX MINUTES.

Six years ago the British determined to build a battle-cruiser that should be bigger and swifter and stronger than any afloat. Hundreds of skilled workmen labored for years in her construction. Ten and a half million dollars were spent on her. She was protected with armor plate of the hardest steel nine inches thick. She was propelled by the most efficient of steam-engines, the turbine. She was armed with ten 13.5-inch guns, which could discharge a 1400 pound projectile every thirty seconds; also with sixteen 4-inch guns, twelve 6-inch guns, and two torpedo tubes. The British, properly proud of her, named her after their queen. A thousand men were put aboard of her, and she was sent into action on the last day of May.

The German warships opened fire, and within six minutes the "Queen Mary" was torn asunder by a terrific explosion, and sunk.

I suppose this great warship was paid for and built by taxing good honest hard-working people. To say nothing of the waste of life, think of the property and the hard work that were wasted in just six minutes. Will the great wide world learn a lesson from the above event? or will the nations keep on building warships on such a scale, or even a larger scale, to meet a like catastrophe and disaster? Who can answer? Will any power on earth put a stop to it unless it is the Lamb of God that taketh away the sin of the world? If he should command the nations to cease such awful and wicked waste, would they obey him as did the money changers in the temple? I read somewhere that somebody suggested that these war times have demonstrated the failure of religion; but a bystander quickly replied, "Not so, my friend, for religion has not *even been tried*."

And now in closing this Home paper I want to give you the contents of a tract just sent me by the good woman who gave us "War on Christian Principles." On the first page of this tract there is an excellent picture of a shoemaker working with his last. By the way, it used to be the fashion some fifty years ago for shoemakers to entertain a lot of loafers, and too often they wasted their time in denouncing Christianity and in holding up to view the faults of Christian people. It seems that a Bible-reader went into the shop, and the skeptical shoemaker commenced on him, with the result as follows:

THE SKEPTICAL SHOEMAKER.

"I have read," said the shoemaker, "a good deal about the heathen gods, and I believe the account of Christ is taken from some of the heathen writings or other."

"Will you abide by your own decision on two questions which I will put to you?" said the Bible-reader. "If so, I will freely do the same; I will abide by your own answers. By doing so we shall save much time and arrive more quickly at the truth."

"Well," said he, "out with it, and let us see if I can answer; there are but few things but what I can say something about."

"Well, my friend," replied the reader, "my first question is: Suppose all men were Christians, according to the account given to us in the Gospels concerning Christ; what would be the state of society?"

He remained silent for some time, in deep thought, and then was constrained to say, "Well, if all men were really Christians in practice as well as theory, of course we should be a happy brotherhood indeed."

"I promised you," said the reader, "that I would abide by your answers: will you do the same?"

"Oh, yes!" he readily replied; "no man can deny the goodness of the system in practice. But now for the other question; perhaps I shall get on better with that. You have got a chalk this time against me."

"Well, my next question is this: Suppose all men were infidels; what then would be the state of London and the world?"

He seemed still more perplexed, and remained a long time silent. At length he said, "You certainly have beaten me, for I never before saw the two effects upon society. I now see that where the Christian builds up the infidel pulls down. I thank you. I shall think of what has passed this afternoon."

The sequel was that he was fully persuaded in his own mind to give up his infidel companions and follow the Lord Jesus Christ. But the change did not stop here. When first the reader called he found him sitting on an old dirty chair, with a number of half-starved children in rags on the floor around him, neglected and uncared for; now they have removed to a better home in a cleaner street. Within all is cheerful and happy. The father, no longer faithless, delights in the company of his wife and children, all of whom are neatly dressed; and his chief happiness is to read and speak of the things which belong to their everlasting peace.

AMERICAN TRACT SOCIETY,
150 Nassau St., New York.

There are several points in the above that come home to me with considerable force. First, the Bible-reader did not propose to argue the matter; and I have often thought that it is a waste of time as well as a waste of breath to undertake to argue with one who opposes Christianity and the Bible. Second, the Bible-reader tells the shoemaker he can be his own judge and jury, and that he, the Bible-reader, will agree with his decision. The shoemaker answered with considerable confidence. He had had a lot of practice in defending infidelity. The Bible-reader's reply is the same as every sane man or woman will be obliged to give. He says, "If all men were all *really* Christians." Our friend the shoemaker had received a stunner the first clip; but he recovered a little, and thought he could do better next time. The poor foolish man! what *would* be the condition of London and all the world if we were all infidels?

Now for the winding-up. The effect of those few kind words, inspired by the Holy Spirit, worked a transformation in that dirty, dusty shoeshop; and, what is of far more importance, the transformation was also in the shoemaker's home. You need not say the above is fiction, for there is not a town or neighborhood in the whole United States that will not furnish something parallel. Billy Sunday's faithful and earnest labors are doing just what was done for that poor shoemaker in thousands upon thousands of homes while I write. The work in Kansas in some respects, we are told, outstripped his former record. It is the outcome of a faithful holding-up before a sin-cursed world "the Lamb of God that taketh away the sin of the world."

Somebody, I do not know who, has been kind enough to mail me a postal card with the following matter printed on it. It needs no explanation.

"Es fer war, I call it murder."—*James Russell Lowell.*

"Amidst the thunders of Sinai God declared. 'Thou shalt not kill.'"—*Charles Sumner in "True Grandeur of Notions," Lee and Shepard.*

By all means "raise your boy to be a soldier," but have him enlist for the "higher soldiership." Show him the difference between "carnal warfare" and the "good fight" which some minds fail to distinguish.—*A Weltwisher.*

Ponder well the contrast between the bloody method of almost Indian-extirmination as pursued by

some early colonists, and the holy experiment of brotherly love which that old hero William Penn had the courage to try even with savages.—*A Fre lance.*

Wisdom is better than weapons of war.—*ECCLE. 9:18.*

THE GREAT-GRANDDAUGHTER, THE LADY EGLINTINE CHICKENS, AND THAT NEW GARDEN CULTIVATOR.

It has been one of the great pleasures of my life to see things grow. I think I might safely say that for 70 years or more I have almost invariably looked over something every morning to see how much growth it has made during the night; and I examine again several times during the day to watch the gradual growth and improvement; and especially do I like to see seeds push thru the soil out into daylight; and it rejoices my heart to see *boys and girls* grow, not only in physical stature, but, more than all, in that rugged pathway from earth and earthly things toward heaven and heavenly things. Some years ago Mrs. Root made the remark, in speaking of Huber, our last-born boy, "We shall probably not live long enough to see him married."

Well, thru the mercies of a kind Providence we have lived not only to see him married, but to see him the father of a bright little girl who visits her grandmother almost every day when we are here in our northern home. And we have lived to see one of the grandchildren married, and who



The great-granddaughter and her mother when the baby was only 18 days old.



FIG. 2.—The whole flock of 9 chicks, 3 of them 10 weeks old and 6 of them about 7 weeks old.

now has a little girl "of his very own." And it affords me wonderful pleasure—in fact, a thrill of joy and thanksgiving, to be able to present to the readers of *GLEANINGS* the happy mother and the bright little baby with that wondrous smile that she gave her friends when just 18 days old. I think some good woman called that first smile that the baby gives her friends a "three-cornered smile." Just notice that sweet little mouth opened enough to indicate that she too is feeling happy and thankful to get just a brief glimpse of this great and wonderful world and all the rest of the attendant vast universe.* Oh! what is a home without a baby? May I digress just a little right here?

I once knew a beautiful woman. She married a bright and educated man; and as the years passed by he wanted a baby, one or more of them, in his household. Then there was a disagreement in the matter. If I am correct a divorce resulted. She gave her reasons, so far as I can recollect, something like this:

"My good sir, if you thought when you married me that I was going to be mother to a lot of babies, I want to tell you that you are greatly mistaken."

She declined the office of motherhood, probably because of its cares and burdens. I have heard people talk about living for self, without care or regard or feeling of responsibility for anybody else or for coming generations after them.

*A BRIEF SKETCH OF THE ANCESTRY OF THE BABY IN THE PICTURE.

I was born Dec. 9, 1839. Mrs. Root and I were married Sept. 29, 1861. Our first-born daughter, Mrs. Maud Calvert, was born April 16, 1865, the day after the death of Abraham Lincoln. Mr. and Mrs. Calvert were married Sept. 1, 1885. Their oldest child, Howard R. Calvert, was born Nov. 13, 1891, and was married June 29, 1915. The baby in the picture was born May 21, 1916.

Thru a kind and merciful Providence I am able to say today, June 26, 1916, there has been no death among the children, grandchildren, or great-grandchildren up to date.

Let us now talk about chickens a little.

In our Home paper for May I told you about Lady Eglington and the nine chicks, and their successful trip to Ohio when part of them were only a week old. I am glad to tell you that not a chick has been lost. In pictures 1, 2, 3, 4, I give you a glimpse of them when the oldest were about ten weeks old. The young rooster in No. 1 has been giving

us a delightful little crow every morning for two or three weeks. Nos. 3 and 4 give you a picture of our poultry-yard; and No. 5 is a picture of myself running that new cultivator. When Huber took the picture No. 4 I supposed I was all out of sight; but he played a trick on me. I did not know I was going to be taken, so I neglected to straighten up, and there you have got me stoop-shouldered. In No. 5 I straightened up a little better. To tell the truth, I never realize that I am getting to be stoop-shouldered (or in danger of becoming so) unless somebody takes a picture of me unawares. Well, now about that poultry-yard.

We have only a limited amount of space around our home in Medina, and I wanted to give the 9 chicks a place for exercise without encroaching on my garden. In order to keep off the west and north winds, years ago I planted a line of evergreens about eight feet apart; and the ground on each side of these evergreens is no good for gardening as a matter of course; so I put

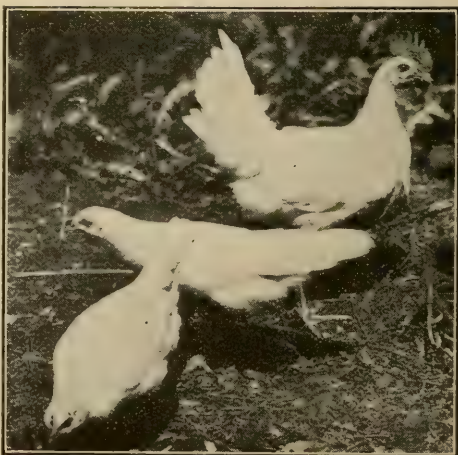


FIG. 1.—Lady Eglington's chicks when the little rooster was about 10 weeks old.

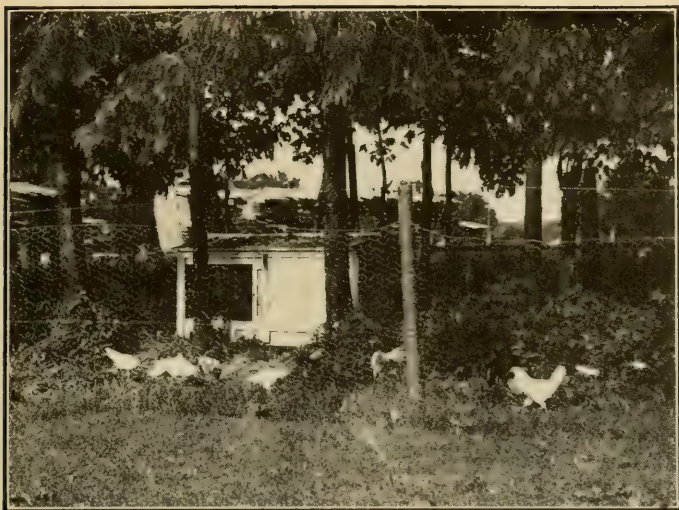


FIG. 3.—The poultry-yard and the Philo coop under the evergreens.

up some netting and made a yard for them about 20 feet wide and toward 100 feet long.

The poultry-house you will see in Nos. 3 and 4, which is one that Huber bought of Philo. It was made particularly to keep a dozen hens and never let them out at all. It is very ingenious and pretty; but as I want my chickens to get out and in the yard whenever it is daylight, I pulled out

rains. Well, the thing worked completely so far. If the sparrows should learn to get into the tunnel, when they wanted to get out they would fly up against the poultry-netting, for there is poultry-netting on the roof as well as on the sides; and when it does not rain a part of the roof is raised up.

Now, there is another thing that pleases me very much about my poultry-yard. Mrs.

a pane of glass to give them a doorway. But a great lot of sparrows soon found this opening and learned to go in and out. I suppose you know my way of feeding chickens is to leave the feed plainly before them all the time. Well, the sparrows were getting to be too much of an expense, and therefore I put the pane of glass back again and taught the chicks to go out and in thru a tunnel under the sill of the house. It stands on a little bank so that this tunnel will not catch or hold water when it

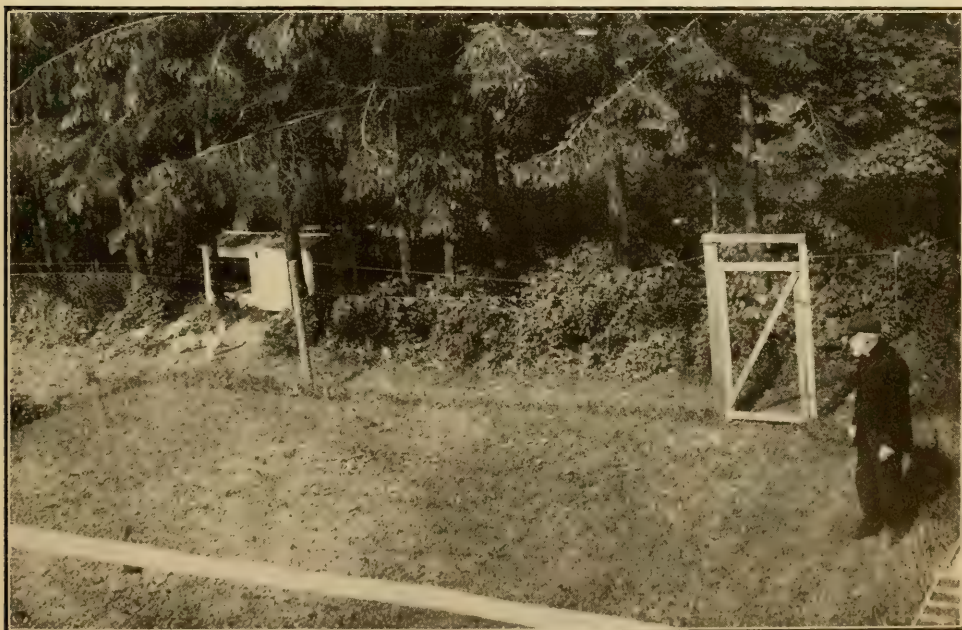


FIG. 4.—The poultry-yard with a glimpse of Mrs. Root's back-yard lawn.



FIG. 5.—The Barker cultivator in the back-yard garden.

Root suggested having it run up to the pantry window so she could toss out to the chickens anything she did not want in cooking or in preparing our meals. Picture No. 1 shows the whole tribe up near the pantry window. The opening shown in No. 2 goes into the basement where I take my noonday nap; and whenever I open my eyes after a refreshing sleep my beautiful little flock of chicks are sure to be first before the window for me to talk to them when I awake.

By the way, friends, don't you think that that is quite a pretty poultry-yard as shown in Nos. 3 and 4? No. 4 shows something else. In our new home we have a lawn out in front of the house; and Mrs. Root petitioned for a lawn in the back yard also. I told her it was the best ground we had on the premises, and I did not want to spare it, and we had some little disagreement about it. But one day I happened to think something like this: Suppose the dear woman should be taken away, and I should

look back and remember that I objected to giving her just a little bit of green lawn in the back yard, where she spent so much time hanging out her clothes and doing other things to keep our premises neat and tidy. Then I went straightway and got a professional lawn-maker to level off the ground and sow the proper kind of seed; and now we have a lawn as you see it, and a man comes around and mows it once a week. You might think that the white mark in the lower edge of the picture was a cement walk out to the clothes-line reel; but it is really a glimpse of the galvanized pipe that sprinkles the garden and the back-yard lawn. It has not been used this year so far, for nature has done all the sprinkling.

Picture No. 5 gives you a glimpse of this same sprinkler and also a glimpse of our Medina clay soil. When the ground is just right after a rain, this little machine makes about the best dust-mulcher around the plant, and does it at less expense than any other tool I have ever gotten hold of. On top of the cultivator, if you look carefully you will see the three keen steel curved blades I have spoken of. It is a good plan to turn the cultivator over and use these first and then finish with the mulching attachment. As the two oldest pullets I have mentioned are today, June 24, about 12 weeks old, I shall be watching for the first egg, *possibly* in July, but probably not till August or some time later. In picture No. 2 you get a glimpse of the whole flock looking thru the basement window to see if I have woke up yet. In fact, they went down thru the window to make me a visit until I put some poultry-netting across to keep them out.

Oh, yes! here is another picture of the Egglintine chicks, after all. It was taken down in our Florida home just before I sent them north by express. They are just in front of the pineapples that were planted partly in the shade of that rubber-tree I have mentioned. Three of them were four weeks old, and the other six were only one week old. There were two difficulties in regard to the shipment. Day-old chicks, of course, go long distances safely; but with *week-old* chicks it is a little different. They must not only be fed and watered, but they must be kept warm. The number was almost too small to keep up the needed temperature in that thin light market-basket; so I put a wooden division in the middle of the basket, and this inside sleeping-room, as we might call it, was lined with a thin cushion filled with cotton batting. On their long trip there was liable to be considerable change of temperature, and therefore I



The nine chicks and their Rhode Island Red mother just before I put them in the basket for their long trip north.

arranged so the whole nine could crowd into the sleeping-room when they were too cold. But should the weather be warm they could stay outside with nothing but poultry-netting overhead. The feed and water were

in this outside apartment or "dining-room." The fact that they are still all alive, and spry as crickets, seems to indicate that they are at least a hardy strain of White Leg-horns.

HIGH-PRESSURE GARDENING

SWEET CLOVER DOING MISSIONARY WORK.

I think something has already been made mention of in our columns in regard to transforming the worthless hills of Kentucky into "a land flowing with milk and honey." Here is some further evidence in regard to it which I clip from the *National Stockman and Farmer*:

A PLANT IN PLACE.

Those who live on rich land and emit occasional sarcasms about sweet clover should take a little trip to Pendleton County, Kentucky. Twenty years ago that county was in a bad way. The land was badly eroded and gullied. Land was cheap because it produced little. Then somebody started sweet clover, a plant with a mission on barren land if not elsewhere. Today the hills are productive, the gullies are gone or at least are out of sight. Sweet clover and alfalfa, which followed it, are the foundation of a big dairy industry and a considerable business in seeds and honey. Trying to produce the wrong things—grain and tobacco—almost ruined Pendleton County. A plant which is called a weed and may be a weed in some parts of the country has redeemed it. There are communities here and there in this broad land which would profit by sending a delegation to Pendleton to absorb some facts and shuck off some prejudices.

There is just one thing in the above that I am not ready to subscribe to. Altho the

writer does not say so, there is an implication that sweet clover may be a weed in some parts of the country. Somebody has said—I do not know who—that not one of the legumes can ever be called a weed anywhere or under any circumstances. If sweet clover should happen to get in somewhere where it is not wanted, just cut it and feed it to the stock, and the stubble that is left has already done valuable work in improving the soil so you can grow alfalfa or almost anything else. Notice what is said on next page about growing nice potatoes on our sterile clay soil on a railroad embankment after sweet clover had made it possible.

SWEET CLOVER AND ALFALFA.

Prof. Bowers, of the Iowa State Experiment Station, compares the two clovers as follows, which we clip from the *Rural New-Yorker*:

SWEET CLOVER COMPARED WITH ALFALFA.

Sweet clover and alfalfa are very similar plants when young, and at this time they are difficult to determine from each other unless one is familiar with their distinguishing characteristics. Sweet clover is bitter to the taste, while alfalfa is not; the

leaves of sweet clover are broader than those of alfalfa and are smooth on the under surface, while the leaves of alfalfa are hairy on the under surface. After blooming, sweet clover is readily distinguished from alfalfa by the white or yellow flowers of the former in contrast to the purplish-colored flowers of alfalfa.

Sweet clover usually grows more dense than alfalfa, and is coarser. It will thrive on soils where alfalfa will not, and has a wider range of climatic adaptation. Sweet-clover roots do not as a rule penetrate as deep into the underground as alfalfa roots; but the root development of the former is much greater, and these large succulent roots decay more rapidly and give less trouble in plowing. Sweet clover is more succulent than alfalfa, and is thus more difficult to cure for hay than the latter. Cumarin is found in sweet clover, but does not occur in alfalfa. Alfalfa is a perennial in duration, while sweet clover is only a biennial.

Sweet clover superior to alfalfa—easier to get a stand; fits better into rotations; better for cattle, sheep, and bee pasture; rarely causes bloat; furnishes earlier spring pasture; roots decay more rapidly; will grow on poorer soils; will resist extreme drouth better; will grow on soils too wet for alfalfa; will grow on soils too hard for alfalfa; will grow later in the fall; practically free from insect pests and plant diseases; produces less washing effect on animals, and is a better green-manure crop.

Alfalfa superior—better hay; better pasture for hogs; more palatable at first; does not become so coarse and woody; is a perennial; has less hard seed, and is less difficult to cure for hay.

The protein analysis of the fresh forages shows in favor of sweet clover, but it contains a smaller percentage of all the other nutrients. In case of the hay the analysis shows that sweet clover possesses a higher per cent of protein and fat, while alfalfa contains slightly more ash and carbohydrates. According then to the nutritive coefficients sweet-clover hay surpasses alfalfa hay, and fresh sweet clover excels fresh alfalfa in protein content.

Iowa Experiment Station. W. E. BOWERS.

I think I have before mentioned that I have for forty years or more championed sweet clover. In view of the above it is a little refreshing to see now every farm paper more or less interested in testing sweet clover. And just notice the concluding sentence in the above extract from one of the foremost experiment stations of our land.

Now just a word in regard to the ability of sweet clover to grow anywhere. In 1890 a railway was cut thru a dry clayey hill close to our factory. The dirt piled up was pure yellow clay, and the clay on top of the pile, that came from perhaps ten feet below the original surface, was spread out over several square rods. For some little time not a weed of any sort made its appearance. The ground was so hard and yellow that it was no good, evidently, for any plant. Finally sweet clover gradually got in, and soon grew with rank luxuriance. One spring, when it was up about two feet high, for experiment I had it plowed under and planted to potatoes. People laughed at me for thinking I could grow potatoes on that yellow clay bank without any manure.

To the surprise of everybody, and somewhat to my surprise, I got a fair yield of smooth potatoes. Without the "green manuring" of sweet clover I should not have had a potato, and perhaps hardly a green leaf.

EARS HIGHER UP THAN A MAN CAN REACH,
AND THREE OR FOUR EARS ON A STALK.

On page 559, July 1, Mr. C. L. Harrison speaks of some ears of corn higher than he can reach. Well, on June 24, just 22 days later, the man who has charge of my Florida garden writes as follows:

The corn is doing nicely. Each stalk has from three to four ears on it. I think we shall have a fine lot of corn to house. The velvet beans are running up on the corn, but that does not seem to hurt the corn. WESLEY WELCH.

Bradentown, Fla., June 24.

MULCHING YOUR FRUIT-TREES AND OTHER TRUCK.

Our Ohio Experiment Station at Wooster has a block of fruit-trees mulched clear out around as far as the limbs extend, and kept mulched the year round. The mulch is heavy enough to keep down all the weeds or grass. Well, adjoining this block of trees is another one just like it, only the ground is kept under cultivation. In other respects the treatment of the trees is as nearly alike as possible; but the mulched trees are far ahead, and have been ahead for years in every respect. The difference in vigor of the mulched trees is visible as soon as one gets in sight of the orchard. This matter was brought to mind by the following, which I clip from the *National Stockman and Farmer*:

Another word about mulching. It should be more generally practiced. In driving over the country, enormous quantities of mulching material may be seen here and there—old straw stacks, spoiled hay, weeds, and grass growing in nooks and corners. Why not utilize all of these materials for mulching the strawberries, fruit-trees, brambles, currants, gooseberries, asparagus, tomatoes, celery, and many other horticultural crops? Bear in mind that a heavy mulch conserves moisture better than the most perfect tillage, and that the soil is enriched every time you apply a mulch. There is satisfaction, too, when you are busy harvesting the general farm crops in knowing that the mulched plantations are not being neglected. Try mulching.

It seems to be much the fashion, when you commence making a garden, to make a big bonfire of the trash; but it pains me every time I see it. Everything that can be burned up is valuable for mulch. When I protest they often tell me they want to burn the weeds that may contain seed. My friends, you do not need to worry a bit about weeds and their seed, even docks. Pile them up around your trees; and if the

dock seed or any other kind of seed commences to grow, put on more mulch—old dirty newspapers, or paper that has been wrapped about your meat—anything and everything. When this trash gets well rot-

ted it makes a most excellent fertilizer; and if you should happen to get more around a certain tree than it needs, work it into your garden in place of buying manure. Save the fertility.

TEMPERANCE

PROHIBITION IN KANSAS AND THE FRA MAGAZINE.

In our June 15th issue I spoke of that article from the *Fra* magazine, and copied a sentence in regard to prohibition in Kansas, in which I suggested that the closing of 220 schools in Kansas in 1914 was because of the plan of consolidating rural schools. In a lengthy article in the *New Republic* of June 23 the Governor of Kansas replies in full, and not only corroborates my suggestion, but replies to all the points made in that article. It would seem this man who wrote the article for the *Fra* was employed by the liquor party to hunt up everything he could in the way of statistics that might be construed so as to cast a slur on Kansas. What little truth there was in the statement was so construed as to make it appear derogatory, when the real facts were wholly otherwise. And with it all is a great lot of whole-cloth falsehood. Any one who cares to go all over it can get it in the *New Republic*, Westerville, Ohio.

COMING OVER TO OUR SIDE.

It appears that the proprietor of the *Denver Post* was once against prohibition; but he now comes out announcing his change of mind, and, I hope, change of heart, as will be seen by the following, which I clip from the *New Republic*:

WAS BUM PROPHET; GLAD OF IT.

The terrible things that I predicted did not come with prohibition. It is doing wonders out here. Colorado is happier, wealthier, healthier, wiser, and more prosperous with prohibition. I am glad that my predictions did not come true.—H. H. TAMMEN, Proprietor of the *Denver Post*.

"THE WAY OF THE TRANSGRESSOR IS HARD."

Dear Friend:—I send you a clipping for your temperance department. It shows how we deal with the liquor-sellers in this part of the country. This is only one case of the many that have been convicted and fined lately. I clip it from the *Bystander*, Macomb, Ill.

Macomb, Ill., June 24.

GEO. J. STURM.

County Judge C. I. Imes imposed a heavy sentence on Samuel T. Danley this morning in county court. It will be remembered that Danley was convicted by a jury this week on six counts on the charge of selling intoxicating liquor in anti-saloon territory.

Judge Imes imposed a sentence of 60 days on each of the six counts and \$100 on each of the six counts.

Danley, it is believed, cannot pay the fine; and if this be the case then his imprisonment in the county jail will total 893 days, or over two years and a half.

THE SENTENCE.

In imposing the sentence Judge Imes said:

"You have been indicted, given a fair and impartial trial, found guilty of six violations of the law, after twice having violated the same law. Under statute it becomes my duty as the judge of this court to pronounce sentence upon you under this charge and verdict, and I desire to temper justice with mercy toward you as an erring brother-man, and also do my duty to the community in which you live, and whose peace you have disturbed by repeated violations of the law of this state.

"The unlawful sale of intoxicating liquor is not only a misdemeanor under the law, and wrong, but public sentiment is growing strongly against any use of intoxicants as a beverage; and those who have acquired a habit which demands a use of such beverage should be discouraged in the pursuit of that which increases their desire for strong drink and eventually brings trouble to themselves, their families, and the community in which they live.

"And you must be induced to stop your illegal pursuit for your own good, the good of your customers, and the good of society at large; and you should realize that society demands this, and that society is stronger than you, and will succeed in crushing you if you persist in opposing their wishes.

"The defendant, Samuel Danley, is sentenced to be confined in the county jail of McDonough County, in the state of Illinois, for a term of sixty days on each of the six counts of the indictment upon which he was convicted, the term of confinement on the second count to commence when the term of confinement on the first count ends, and so on till the six terms are served; and that he pay a fine of one hundred dollars on each of the said six counts, and the costs of this suit.

"In default of payment of said fine and costs, the defendant is required to work out the same on the streets and alleys of Macomb, Ill., at the rate of one dollar and a half per day, such work to begin at the end of the last term of confinement as pronounced by this sentence."

How many wise and good judges like the one in the above have we in this land of ours? Long may they live.

REDUCTION IN THE NUMBERS OF MURDERS COMMITTED IN ARIZONA UNDER THE DRY REGIME.

We clip the following from the *American Issue*:

During the past 18 months with prohibition in effect in Arizona, there were six murders in the state. The last six months under the saloon regime there were 30 murders. Had this ratio been kept up under prohibition, there would have been 90 murders the past 18 months instead of six.

DRUNKENNESS BEFORE BIRTH.

In times past much has been said about inheriting an appetite for strong drink; but many physicians, if I am correct, rather doubted it; but it is very probable that the common soothing syrups—Mrs. Winslow's, for instance—all contain both alcohol and morphine. These often have much to do in giving persons a tendency toward the drink habit from what they have received when babies in the way of medicine. In the clipping below is a statement that is really astounding. Just notice the sentence, "The child has been drunk many times before it has been born."

INDUSTRIAL PUBLICATIONS FIGHT LIQUOR TRADE.

An editorial from "Craneing," published by the Crane and Engineering Company, is typical of the outspoken attitude of industry toward drink. In part the editorial says: "The worst effect of alcohol is the result of its use by women while bearing offspring. The child has been drunk many times before it has been born. Scientific men stated in a very positive manner that children generated and born under the influence of liquor frequently do not have an equal chance with better-born children; they are not brought into the world with normal minds. Often the bodies, too, are puny. Men and women who do not wish to be under the curse, till they die, of having borne undersized, shrunken, mentally stunted children, will study up on the effect of alcohol on the cells of the human body."—*Methodist Board of Temperance.*

GROCERIES OR BEER—WHICH WILL DO HUMANITY THE MOST REAL GOOD?

We clip the following from the *American Issue*:

The Minneapolis *Journal* is authority for the statement that the Great Northern Railroad during the last wet year in Itasca County, Minnesota, shipped in 79 tons of beer, and in the first dry year shipped no beer at all, but shipped an increase of 79 tons of groceries.

This causes Louis Albert Banks to remark that "since the scientists tell us you have to drink 31½ tons of beer to get one ton of food, that was some change for one station."

WISE SUGGESTIONS FROM "MRS. HETTIE GREEN."

We are just informed that Mrs. Hettie Green, "the richest woman in the world," as she has been called, is dead. She died at the advanced age of 82. Now, whatever may have been said of her and of her special faculty for "laying up treasures on earth," she has given us some excellent rules for living to a good old age, and preserving the use of her faculties to a remarkable degree thruout a life devoted to making riches multiply. We clip the following from the *Cleveland Plain Dealer*:

HETTIE GREEN'S LIFE RULES.

Hetty Green once gave an interviewer the following list of rules which she said were those of success:

Eat only good, wholesome food.
Don't cheat. You may worry yourself into the grave in remembering your misdeeds.
Don't envy your neighbors.
Don't overdress. It makes others jealous.
Dress warmly. Vanity in cold weather causes many deaths.
Go to church. The church needs you, and you need the church.
Don't forget that if your riches have been gained by unfair means the doors of heaven will be bolted against you.
Be charitable. Don't falsify.
Take a lot of exercise. Walk whenever you can.
Obey all God's laws, including the precept: "Give unto Caesar that which is Caesar's and unto God that which is God's."

THE CIGARETTE AND THE TOBACCO HABIT.

I hold in my hand a neat little pamphlet of 76 pages entitled, on the front cover, "The Case against the Little White Slaver." Part 4 is just out, and contains much important matter in regard to tobacco and cigars. From the last page I quote one sentence as follows:

The world of today needs men, not those whose minds and will power have been weakened or destroyed by the desire and craving for alcohol and tobacco, but, instead, men with initiative and vigor, whose mentality is untainted by ruinous habits.

The pamphlet in question can be obtained by addressing Henry Ford, Detroit, Mich.

WORDS ALMOST EXTRAVAGANTLY KIND, AND SOMETHING ELSE.

Dear Mr. Root:—I have sent you some copies, a report, and an almanac which I have preserved until now. I would hardly part with them. They seem to spur me on to more earnest efforts to do the will of our God. I think you will rejoice when you look the books over to learn that there is one more man in the world who is depending entirely on God for all he needs. I like to hunt such people up; and let me say right here I am not trying to flatter, for it is the truth, when I say that many times I have cried when I have read your writings; and when I thank God for blessings received I surely must thank God for A. I. Root. I do not keep bees now. I have taken GLEANINGS from away back in the eighties; and you can guess why—the old story that many before me have said, because of the Home papers.

Chelmsford, Mass.

C. L. AKERSTROM.

The literature referred to in the above is in regard to the "Children's Home" at New Britain, Ct. Years ago we sold and gave away many copies of "Mueller's Life of Trust." The wonderful story of how Geo. Mueller received millions of dollars for his orphanage *solely* in answer to prayer, interested our class in the Medina jail more than any other book. Well, I did not know until just now that a similar work was going on here in America. For further particulars address as above.

There is Money in Our 3-banded Italian Bees

20 Years of Select Breeding Gives Us Queens of Highest Quality

Queens for Honey Production - - Queens of Unusual Vitality

Our select colonies used for breeding purposes, larva and select drones are those of the highest standard, the choice of over 1000 hustling, honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus very effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get cells that produce large, long-lived, and hardy queens, which give workers unexcelled as honey-producers. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved.

All orders will be filled promptly by return mail or soon. We have no disease of any kind. Satisfaction and safe arrival we guarantee.

Select untested . . . 65 cts. each or \$60.00 per 100	Tested \$1.00 or \$ 90.00 per 100
Untested 50 cts. each or 45.00 per 100	Select tested 1.25 or 115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.
Write for descriptive price list.

M. C. Berry & Company Hayneville, Alabama

50c -- Golden and 3-banded Italian Queens -- 50c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 50 cts.; 100, \$45.00. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. 1 lb. bees, \$1.25; 2 lbs., \$2.00; 1-fr. nucleus, \$1.25; 2-fr., \$2.25. Full colony 8-fr., \$6.00; 10-fr., \$7.00. No queens at these prices.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.
C. C. Miller, Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, \$1.00; 12 for \$10.00; Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00.
Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

QUEENS!

In the Beginning is where Quality starts

Our breeding stocks, our methods of breeding cannot be surpassed anywhere

If you want to know who we are, read "How to Produce Extracted Honey," also "Modern Queen-rearing," both of which we wrote for The A. I. Root Co., while we were their head apiarist some 12 years ago. Untested queens, \$1.00; tested, \$2.00. Other prices on request.

Geo. W. Phillips, Lebanon, Ohio

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, 75 cts.; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.

BEE SUPPLIES Send your name for new 1916 catalog.

Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Forehand's Italian Queens

Gentle, good honey-gatherers, bred for business. Their mothers were imported — the best to be had. If you buy once you will buy always. Just look at these prices. Where can you find better?

Untested, . . .	July to Oct. 1, one, \$0.50 up to 25.
Select Untested, " "	" " " 1, .75; 6, 4.25; 12, 8.00
Tested, " "	" " " 1, 1.25; 6, 7.00; 12, 13.00
Select tested, " "	" " " 1, 2.00; 6, 11.00; 12, 20.00

If queens are wanted in large quantities send for prices.
We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.
All orders filled at once.

L. L. Forehand, Fort Deposit, Ala.

Italian Queens with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on	1 to	10 queens, 50 cts. each
"	11 to	25 queens, 45 cts. each
"	26 to	100 queens, 40 cts. each
"	101 to	1000 queens, 38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal. Dadant & Sons. any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	12	12	1	12	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8 frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

QUEENS!

Three-band Italians
Untested 50 cts. each

The same ones you pay \$1 for, and just like the ones you get for \$1.50. Guaranteed to be as good as money can buy. Every one guaranteed to give perfect satisfaction; safe delivery also guaranteed. Write for prices on lots of 25 and more.

N. Forehand, Ft. Deposit, Ala.

Queens of MOORE'S STRAIN of Italians PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.
Queen-breeder

J. P. MOORE,
Route 1, MORGAN, KY.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

NEW ORANGE-BLOSSOM HONEY.—Two 60-lb cans, \$9.75. Sample bottle by mail, 10 cts.

OTTO LUHDORFF, Visalia, Cal.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order.

DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7 cts. per lb.; also comb honey in $4\frac{1}{4} \times 1\frac{1}{2}$ -inch sections, f. o. b. cars.

JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb.

W. A. LATSHAW CO., Clarion, Mich.

Saw palmetto honey, thick and delicate; case of two 60-lb. cans, \$5.00. Also best seagrape and mangrove honey, 7 cts. in cans or 6 cts. by the bbl. Sample, 10 cts, to be applied on order.

A. E. AULT, Bradentown, Fla.

RASPBERRY HONEY.—Thick, rich, and delicious, put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.

ELMER HUTCHINSON,

Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE CO., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—White-clover and raspberry extracted honey; also glassed comb honey.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To buy a quantity of dark or amber baking honey. State price, and source gathered from.

A. G. WOODMAN, Grand Rapids, Mich.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.

"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.

A. L. HEALY, Mayaguez, Porto Rico.

HONEY LABELS.—Most attractive designs. Catalog free.

EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels.

LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—165-lb. honey-kegs at 55 cts., f. o. b. factory.

N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.

A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.

WHITE MFG. CO., Greenville, Tex.

The Stanley improved cylinder cage with queen-cells, postpaid, 6 cts. each, or \$5.00 per 100. Write me for queen-breeders' supplies.

ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash, 27 trade.

J. F. ARCHDEKIN, Bordolville, La.

THE ROOT CANADIAN HONEY, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference.

E. E. VROOMAN & Co., 834 F., Washington, D. C.

WANTS AND EXCHANGES

WANTED.—To buy a Root extractor, cheap.

ARBA BRUTUS, Pine Village, Warren Co., Ind.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

YOU CAN DO BETTER ON A SOUTHERN FARM. Send for a year's subscription free to our beautifully illustrated magazine, The Southern Homeseeker, which tells all about good low-priced land and southern opportunities. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list.

JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.

J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies

J. H. M. COOK, 70 Cortlandt St., N. Y.

FOR SALE.—Untested golden Italian queens, 60 cts.

J. F. MICHAEL, Winchester, Ind.

Rhode Island northern-bred Italian queens, \$1. Circular.

O. E. TULIP, Arlington, R. I.

Try my MAPLEWOOD queens. Sure to please. One dollar each.

GEORGE H. REA, Reynoldsville, Pa.

Golden-all-over-queens of quality. Untested, 75 cts.; tested, \$1.50.

A. O. HEINZEL, Rt. 3, Lincoln, Ill.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

QUEENS THAT COUNT—See our adv. elsewhere in this issue. GEO. W. PHILLIPS, Lebanon, Ohio.

Italian untested queens, \$1 each; \$5 for 6; \$9 per dozen. DOOLITTLE & CLARK, Marietta, N. Y.

FOR SALE.—10 stands Lees in section hives, eight frame. THOMAS HARTLEY, Sutherland, Fla.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—600 colonies well kept bees. All modern equipment. White WM. CRAVENS, Rt. 7, San Antonio, Tex.

Three-banded Italian Queens: 1, \$1.00; 6, \$5.00; 12, \$9.00; Moore's strain. Satisfaction guaranteed. F. L. JOHNSON, Mt. Airy, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Northern-bred Italian queens of the E. E. Mott strain. July, 75 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y. East End.

FOR SALE.—200 strong colonies with extracting equipment; unlimited range; continuous honey-flow. No disease. J. O. HALLMAN, Unadillo, Ga.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Silver City, N. C.

Keep your bees free from disease, and have strong colonies, by using a Keystone Golden queen at \$1.00 each; 6 for \$5.00. WILL H. CARL, Elysburg, Pa.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

Italian Queens of Quality; satisfaction guaranteed. Introductory price 60 cts. each. W. D. ROTH, Earlinton, Pa.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—1 lb. three-band Italian bees, \$1.00; untested queen, 65 cts; tested, \$1.00; select tested, \$1.25. Rosedale Apiaries. J. B. MARSHALL & SON, Big Bend, La.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb. D. L. DUTCHER, Bennington, Mich.

Italian queens as good as can be produced. Untested, 50 cts. each; select untested, 60 cts. each; tested, \$1.00 each. Safe arrival; no disease. W. J. FOREHAND & SONS, Ft. Deposit, Ala.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1. 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The "genuine quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowlstown, Tenn.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

Large well-bred three-band Italian queens by return mail; 1, \$1.00; 6, \$5.00; 12, \$9.00; guaranteed purely mated, select tested, \$1.50; full colonies, 10-frame, \$8.00; 8-frame, \$6.00, queen included. S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, Box 338J, Rt. 6, San Jose, Cal.

FOR SALE.—Fine Italian queens, three-banded; best that can be produced. Safe arrival and satisfaction guaranteed. Untested, 60 cts. each; 12, \$7.20; tested, \$1.00 each. J. F. ARCHDEKIN, Bordlonville, La.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & CO., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

FOR SALE.—Italian Bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

FOR SALE.—Fine Italian queens, untested, 75 cts. each or 6 for \$4.00; select, \$1.00 each, or 6 for \$5.00. Strong three-frame Italian bees with good queens, \$4.00 each. All bees and queens healthy, free from all disease. Satisfaction guaranteed in all cases. EDW. A. REDDOUT, box 43, Lysander, N. Y.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & CO., Loreauville, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.

M. BATES, Rt. 4, Greenville, Ala.

Choice Italian Carniolan or Caucasian queens: Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. C. W. FINCH, 1451 Ozden Ave., Chicago, Ill. Phone Haymarket 3234.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS. My three-banded strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

Fine Italian queens by return mail. Select golden and three-banded, lined to select drones. Hardy, prolific honey-gatherers. Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00. Six or more at dozen rates. No disease. Safe arrival. I positively guarantee every queen to give reasonable satisfaction.

CHAS. M. DARRROW, Star Route, Milledgeville, Mo.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free.

J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 315, Buffalo, Tex.

PURE ITALIAN QUEENS.—Golden or three-banded, by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

HELP WANTED

WANTED AT ONCE—A man with experience to work with bees. Good wages.

W. A. CHEEK, Merino, Col.

CONVENTION NOTICES

Owing to the large flow of honey, and not being able to get prominent beekeepers to attend, I will call the field meet off which was to be held July 27 at my house.

Fairfield, Iowa, July 5.

J. I. DANIELSON.

SEVENTH ANNUAL FIELD MEETING OF THE CONNECTICUT BEEKEEPERS' ASSOCIATION AT CONNECTICUT AGRICULTURAL COLLEGE, STORRS, CT., THURSDAY AND FRIDAY, AUGUST 3 AND 4, 1916.

PROGRAM.

THURSDAY, 2 P. M.

"Producing Comb Honey without Separators," Allen Latham.

Mr. C. P. Dadant, of Hamilton, Ill., editor of the *American Bee Journal*, and an authority on beekeeping of international renown is expected to be present and address us upon a topic to be announced later. This is a rare opportunity for the members of our association to meet a distinguished pioneer and expert in our industry.

"Foul Brood and Honey Prospects in Connecticut," August Hillman.

Demonstrations at the college apiary by Inspectors A. W. Yates and H. W. Coley.

8:00 P. M.—Question-box and round-table talk.

FRIDAY, 9 A. M.

"Requirements of Successful Wintering," O. S. Rexford.

"Production and Marketing of Extracted Honey," D. R. Bristol.

"Requeening: How? When? Why?" A. E. Cranford.

Those members who attended our field meeting at Storrs last year will need no urging to attend this one, and those who have never yet attended we refer to those who have, for a complete report of the royal good time we enjoyed and the many interesting things seen. Meals cost at the rate of 50 cts. for single meal or 3 for \$1.00. Rooms and beds furnished without charge to those providing their own sheets, pillow-cases, and blankets; otherwise the charge is 50 cts. per night.

Transportation by auto-bus from Willimantic is 50 cts. each way. By special arrangement with Storrs Garage our members will be carried, upon presentation of their membership cards, for 40 cts. each way. These autos leave Willimantic at 10 A. M. and 6 P. M. Returning leave the college at 8 A. M. and 3 P. M. Members may accompany their wives or husbands.

L. WAYNE STARR, Sec'y.

15 Warner St., Hartford, Ct.

ANNUAL FIELD-DAY MEETING OF MASSACHUSETTS SOCIETY OF BEEKEEPERS

The annual field-day meeting of the society will be held at the Glenwood Farm (summer home of Frank R. Sweet), West Mansfield, Mass., Saturday, July 29, 1916.

Social hour, 10:30 to 11:30.

Basket lunch, 11:30 to 12:00.

Business session at 12. Meeting called to order by President Frisbee.

Action on new members.

Address by Prof. A. C. Miller, Inspector of Apiaries in Rhode Island.

Prof. Burton N. Gates, Inspector of Apiaries in Massachusetts, and C. P. Dadant, of Hamilton, Ill., editor of *The American Bee Journal*, have been invited to address the meeting.

Addresses by prominent beekeepers.

PRIZES.

- No. 1. For the best twelve sections of honey: A baby hive of bees, donated by Henry W. Britton, Stoughton, Mass.
 - No. 2. For the next best: A copper smoker, donated by Frank R. Sweet, West Mansfield.
 - No. 3. For the next best: A queen-bee, donated by E. Clinton Britton, Canton.
 - No. 4. The person who, up to our November, 1916, meeting, shall have brought the largest number of new members into the society will receive an observatory hive.
 - No. 5. The person who introduces the second largest number of new members, a baby hive.
- Other matter of interest—non-swarming hives,

fancy fowls, turkeys, 1870 hive, queen-mating hives used by the late W. O. Sweet in 1860, and a medal won by him at the Horticultural Hall, Boston; old hive made by Mr. H. N. Nason.

Trains.—West Mansfield trains leave South Station, Boston, at 9:03 and 12:34. Boston trains leave West Mansfield at 2:52 and 5:52 P. M. No electric cars near.

PHILIP S. CRICHTON, Secretary.
75 Westland Avenue, Boston.

Field-day Committee: Frank R. Sweet, West Mansfield; Henry W. Britton, Stoughton; Lyman E. Ware, Boston.

Bring basket lunch. Ice cream and coffee will be furnished by Mr. Sweet. Automobiles at station. Stoughton, Mass. HENRY W. BRITTON.

BEE-LINE QUEENS

Golden and Three-banded Italians

From Caraway's prize-winning stock. Every queen purchased of me I will guarantee to give satisfaction. If she does not I will replace her with another queen or refund your money. They are hustlers, long lived, not inclined to build burr-comb, cap their honey white, and are not given to swarming, and are gentle to work with.

My bees and queens are winners of over 100 first premiums in the past eight years. This speaks for itself. If you are going to buy queens you cannot do better than buy the Bee-Line Queens.

Queens are postpaid, and safe arrival is guaranteed to all points in United States and Canada. No diseases of any kind in my apiaries. State inspector's health certificate with each shipment.

PRICES FROM MAY 10 TO NOVEMBER 1.

Italian Queens: Untested....one for 75 cts.;...six for \$4.00;...twelve for \$ 7.75
Tested one for \$1.00;...six for 5.00;...twelve for 10.00
Select Tested one for \$1.50;...six for 9.00;...twelve for 15.00
Untested by the 100, \$60.00; breeding queens, fair, \$5.00; extra select, \$10.00

B. M. Caraway, Mathis, Texas

Bee-line Apiaries

Reference: Mathis First State Bank, Mathis, Texas.

LOCKHART'S SILVER-GRAY CARNIOLANS.

"LINE BRED" for the past 30 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & Co., Lake George, N. Y.

DEAR SIR:—I want another of your fine select untested Carniolan queens. I am more than satisfied with your strain of bees in the past, for they have rid my yards of all European foul brood.

Sierra Madre, Cal., June 27, 1916.

HAROLD DAVINES.

F. A. LOCKHART & CO., Lake George, New York.



Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS . . . FORT DEPOSIT, ALABAMA




THE COAST LINE TO


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CLEVELAND, BUFFALO, NIAGARA FALLS

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The Great Lakes is the mecca for particular and experienced travelers on business and pleasure trips. The D. & C. Line Steamers embody all the qualities of speed, safety and comfort. The freedom of the decks, the cool, refreshing lake breezes, the commodious state rooms and unexcelled cuisine, make life aboard these floating palaces a source of enjoyment.

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During Summer Season the Two Giants of the Great Lakes, Strs. City of Detroit III and City of Cleveland III, operate daily service between Detroit and Buffalo; daily service between Detroit and Cleveland, also delightful day trips during July and August, as well as two boats out of Detroit and Cleveland every Saturday and Sunday nights during these two months. **FOUR TRIPS WEEKLY FROM TOLEDO AND DETROIT TO MACKINAC ISLAND AND WAY PORTS**—From June 25th to September 10th. **SPECIAL STEAMER CLEVELAND TO MACKINAC ISLAND. TWO TRIPS WEEKLY. NO STOPS ENROUTE EXCEPT AT DETROIT EVERY TRIP.** Daily service between Toledo and Put-In-Bay, June 10th to September 10th.

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On D. & C. Line steamers for transportation between Detroit and Cleveland, Detroit and Buffalo, either direction.
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By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;
with other goods, 70c.

OLD COMB AND CAPPINGS rendered
into wax with our hydraulic wax-press.
Perfect work. We buy your wax at high-
est market price. Write us.

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Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.
Please send me the items checked above.

I enclose \$. to cover the cost.

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TRADE NOTES

MOLDED TOP FRAMES.

We have in stock, packed 100 to the box, about two thousand Hoffman frames with 19-inch top-bar molded on the under side instead of with double groove and wedge. These we offer, to close out, at \$3.00 per 100, and 200 metal-spaced, with the same style of top-bar at \$3.50 per 100.

SEED.

We have closed out our stock of buckwheat seed, and will have no more to furnish. We can still supply the several kinds of sweet-clover seed; but our supply is limited; and when sold out we will not carry it any more. We have a surplus stock of annual yellow on which we ask for offers; can supply about 2000 lbs. at your price. Make us an offer.

CHOICE SECOND-HAND CANS.

Why spend money for new cans when you can buy for half price good second-hand ones, free from rust, and satisfactory, for even white honey if carefully cleaned before filling? We do not save the poor ones, but only those which are good enough to use again. We have a supply at Medina, Philadelphia, and New York, at \$4.00 for 10 cases, \$8.50 for 25 cases; \$30 for 100 cases of two 60-lb. cans in good boxes.

BEEWAX MARKET LOWER.

We have had an unusual number of offerings of beeswax from beekeepers as well as dealers for this season of the year, and have an unusually large stock on hand. For several years before the war there was a shortage of wax at this season of the year, and prices reached their highest level in May and June. Till further notice we quote 27 cts. cash, 29 trade, delivered at Medina for average wax.

THE A. I. ROOT COMPANY, Medina, Ohio.

"The Management of Out-apiaries"

72-page book by the well-known writer, G. M. Doolittle, New York

Non-swarming, or the control of swarms in the home yard, is a comparatively easy problem; but the securing of perfect control of the swarming impulse in four or five yards located some distance from your dwelling is not so easily accomplished. The author tells how he secured this and an average of 114½ lbs. of comb honey in a poor season. His latest methods are fully described in the fourth edition of the above. Price 50c postpaid. Order now from the publishers.

The A. I. Root Co., Medina, Ohio



Mental Demons Are They Holding You Back?

Does a host of mental demons bar your path to success? Do you feel yourself incapable to meet important situations? Do you lack the power to make people recognize you—to make others see things *your* way—to compel people to listen to you? Are you weak in a crisis?

Most men have the brains and the ambition to do big things—but a weak personality—a lack of self-confidence—timidness—poor vocabulary—unreliable memory—"stage fright"—hazy, unorganized ideas—*ineffective speech*—are holding them back from the success they deserve.

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| —talk before your club or lodge | —sell more goods | —become a clear, accurate thinker |
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Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same

June and July		August and later	
Untested Queens	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00	
Tested Queens	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Select Tested Queens	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Very best queens for breeding, \$3.00. 1 lb bees in package, \$1.25; 2 lbs. in package, \$2.00.			

Add price of queen. If any of our untested queens should prove to be mated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio



Cleanings ⁱⁿ Bee Culture

SPECIAL BARGAINS IN SHIPPING CASES

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

8 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.

20 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate.

15 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.

56 crates of 50 each, 12-lb. cases, at \$4.00 per crate.

All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

There are also for the same size section: packed 10 in a crate:

12 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.

4 crates of 10 each, 6¼-inch, 3-row at 85 cts. per crate.

4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

For the 4¼ x 1½ beewey section we have:

15 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.

9 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.

15 crates of 50 each, 11½-inch, 2-row, for 12 sections, at \$4.00 per crate.

8 crates of 10 each, 12-lb. safety cases with carton, at \$1.20 per crate.

5 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.

2 crates of 50 each, 11¾-inch, 4-row, for 24 sections, at \$8.00 per crate.

2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

For 24 sections, 4¼ x 1½ plain:

5 crates of 25 each, 9½-inch, 4-row, at \$4.00 per crate.

2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.

3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

For 12 sections 4 x 5 x 1½:

37 crates of 50 each, 3-row cases, at \$4.00 per crate.

3 crates of 50 each, 3-row for 15 sections, at \$4.00 per crate.

For 12 sections, 3½ x 5 x 1½:

6 crates of 10 each, 3-row cases at 85 cts. per crate.

THE A. I. ROOT COMPANY, MEDINA, OHIO

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	-	-	-	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	-	-	-	1.75 " " " 1.25
Tested	-	-	-	2.50 " " " 2.00
Select Tested	-	-	-	3.50 " " " 3.00

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351 ORANGE ST.

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping" postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.



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MACKINAC

DETROIT

CLEVELAND, BUFFALO, NIAGARA FALLS

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By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;
with other goods, 70c.

OLD COMB AND CAPPINGS rendered
into wax with our hydraulic wax-press.
Perfect work. We buy your wax at high-
est market price. Write us.

THE FRED W. MUTH CO.
204 Walnut Street Cincinnati, Ohio

Gleanings in Bee Culture

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\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CHICAGO.—For the past month there has been little doing in honey, so that a market price is really a difficult thing to quote, as parties who have carried over their honey are accepting what they are offered. We look for new comb honey to sell at about 13 cts. per lb. for the best grades of white, and for the time being the ambers may bring nearly as much, as there does not seem to be much of that in the market. Extracted ranges from 7 to 8 for the white and 6 to 7 for the amber. Very little of the harvest of 1916 is on this market, and what there is has not been sold. The weather now being warm, the retail trade are not endeavoring to sell. Beeswax is bringing 28 to 30, according to color and cleanliness. Chicago, July 18. R. A. BURNETT & Co.

ALBANY AND SCHENECTADY.—There is no new comb honey in our market yet, and stock of last season closed out. Some producers have offered us light extracted in 60-lb. cans, but there is no demand as yet. The present outlook for white honey is reported good. We could sell some No. 1 comb in a small way, but there is no established price yet. We think, however, it would bring 15.

CHAS. MACCULLOCH.

Albany and Schenectady, July 21.

KANSAS CITY.—There is a lot of native honey coming into the market now. Most of it is white clover, the best fancy white selling for \$3.50 a case, or \$3.25; No. 2, \$3.00. Last year's extracted honey, amber, sells at 6½ cts., and white clover at 8 cts. There is a fairly good demand.

C. C. CLEMONS PRODUCE CO.

Kansas City, July 20.

ST. LOUIS.—Comb honey out of season, dead dull, and none selling. Some little inquiry and movement in extracted honey with market for this grade improving. Extracted honey ranges in price from 6 cts. per lb. for dark amber to 7 cts. per lb. for light amber, according to color, quality, and quantity. Comb honey nominal, and ranging in price from \$2.50 to \$3.25 per case. Beeswax brings 29 cts. for prime; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, July 20.

DENVER.—New crop comb honey is selling in the local market at the following jobbing prices: Fancy, per case of 24 sections, \$3.38; No. 1, \$3.15; No. 2, \$2.93. White extracted, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¼ cts. per lb. and amber, 7 to 8 cts. per lb. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean, average yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, July 22. Frank Rauchfuss, Mgr.

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That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

* Circular free.
Queen-breeder

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Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

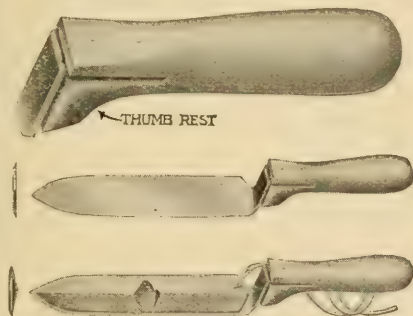
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873 Massachusetts Avenue

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Standard length, 8½ in.; 75 cts.; ship. wt., 15 oz.
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Steam-heated with 3 ft. tubing, \$2.50; ship. wt. 24 oz.

Our knives are made of the best razor steel, and we could produce them at least 10 cts. per knife cheaper by using inferior material. Mr. W. W. Culver, of Calexico, Cal., writes, "We have had difficulty in getting Bingham knives, such as we are accustomed to—that is, a light flexible knife that will give somewhat in moving the comb. If you can furnish such a knife, send two standard and one steam knife. If the steam knife suits me I shall want about three." This is just the kind of knife we furnish, the kind Mr. Bingham furnished years ago, before others crowded him out with their inferior substitutes. We know, because we have kept bees nearly 40 years. Old timers will again find what they want in our Bingham knife.

Tin Honey-cans--Low Prices

Five-pound Friction-top pails, lots of 50, \$3.25; 100, \$5.35; 203, \$10.35; 1015, \$50.00.

Ten-pound Friction-top pails, lots of 50, \$4.30; 100, \$7.60; 113, \$8.35; 565, \$40.00.

Sixty-pound cans, two in a case, 70 cts. per case; over 10 cases, 69 cts; 25 cases, 68 cts.; 50 cases, 67 cts.; 100 cases, 65 cts. per case.

All F. O. B. Chicago, Ill.

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Established 1885

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I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.

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Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

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bee supplies." Manufacturers of "Su-
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Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater
the crop. Increase your interest by
studying what happens in the egg.
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The Embryology of the Honey Bee

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SIZE AND MAKE-UP

Column width, 14½ ems (2⅜ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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Wanted---Honey

Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

What do you know about that

We are getting an almost innumerable number of orders to go by parcel post --- a great thing for beekeepers on rural delivery. BUT REMEMBER to always include enough in the amount sent to cover the postage required. . . .

For instance, if you are within 150 miles of Syracuse, and need 500 sections, we can mail them for 41c; 250 sections for 21c, and 100 sections for 11c. Foundation in 5-lb. lots, can be mailed for 11c; 2 lbs. for 7c; 1 lb. for 6c. Always figure postage more than foundation weighs. Rates inside of 150 miles once the total weight plus 4.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Nominated by Acclamation

Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who has "been at it" for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis sections in a season, and has not found one section in the whole lot that was not perfect. Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

AUGUST 1, 1916

NO. 15

EDITORIAL

IN our issue for July 1 we should have made special mention of the article by H. H. McIntyre on how to get all the honey from the cappings. There is another article that deserves special mention—the one by G. A. Deadman on a plan for cleaning honey-combs after extracting. If the reader has not already read these two articles he should do it yet.

Idiosyncrasies of the Clover Flow

IN our locality, which is dryer than most places in the United States, the clover yield has been somewhat fitful. Bees would be idle until about noon, and then they would get busy again as the day wore on. Our extracting had to be postponed in some cases on this account. There would be nothing doing in the morning; but in the afternoon the combs began to show raw nectar.

In some localities the bees will be busy all day. In one place in particular they will bring in more honey in the morning than in the afternoon; and the suggestion has been made that perhaps the bees stay out all night because they are too far away to get home; and when the sun is up they hike for home with a big load of nectar.

The Net-weight Law, Again

QUESTIONS continue to come in about this law, and we are obliged to repeat that it is not necessary to mark the net-weight on honey sold around home and within the state, provided, of course, there is no state law requiring the marking of net weights. But we advise every one to mark the minimum net weight on their sections and to see that all labels on glass or tin packages show the net weight in pounds and ounces. Do not make the mistake, for example, of saying "17 ounces." but say, instead, "1 lb. and 1 oz."

It is not necessary, as we understand the

ruling, to mark the net weight on a whole shipping-case of honey; but as a matter of expediency we advise it. This net weight must be exclusive of the weight of one ounce for each section in the case and the case itself. Better not mark at all than to mark it wrong.

Preparedness against Bee Disease

THE other day as we were going over a set of combs to give to a swarm we found one in which brood had died the previous season. The yard from which it came indicated that it was only a case of chilled brood; but it had somewhat the appearance of a comb that formerly contained American foul brood; and had we not known the prior conditions we might have been in doubt. Even as it was, we instructed the boys to burn all such combs, in view of the danger that was possible tho remote.

Foul brood of either kind in a beeyard is an expensive proposition at best. Moreover, a comb that is smeared up, and has the carcasses of dead brood in it, will be an ideal place for the propagation of bee disease provided that the germs were already in the apiary, or, we will say, in the hives. In this day and age one cannot afford to use anything but good clean combs, and that means that all combs when put away in the fall should be carefully inspected and put into bee-tight compartments, hive-bodies provided with cover and bottom.

Importance of Advertising and Introducing Honey into the Family

THE reader's attention is called to the wealth of reading-matter on the subject of marketing honey, in this issue. We have tried to cover every phase of it. This year of all years it is important to know how and when to sell honey, because it will prob-

ably go down in history as one of the greatest if not the very greatest clover year ever known. It will, therefore, be necessary for all of us to get busy in getting honey introduced, especially at this time, when complaint is made that sugar is abnormally and perhaps unnecessarily high. The producer who will not take advantage of the situation of the high price of sugar is losing the opportunity of his life to introduce his product to his neighbors. If it can once be introduced into a family, its use will continue year after year. Don't miss the opportunity that may not come back again in a decade.

Those who are seeking to buy bees, if lured by low prices, should first ascertain whether those prices cover a suitable guarantee of quality and delivery. To receive a shipment of bees in combless packages, a third or a half of them dead, is making a very poor delivery. Our experience shows that when a third of them are dead a large number more will die soon after putting them in the hive. The prospective buyer should find out exactly what the shipper will do in the case just cited. He will do a whole lot more when he is seeking business, and wants the cash, than after he has got the cash in his pockets. Don't forget that.

"Safe Arrival Guaranteed"

THIS is a phrase that is used in advertising that too often does not mean what it says. Worse yet, there are other times when no guarantee of any sort is stated, and the prices are made very low.

A customer recently complained that an advertiser sent him a nucleus containing wormy combs, old-style and rotten frames, and on top of it all the shipment arrived in bad order. The customer complained, but the shipper came back with the statement that his prices were very low, and therefore he could not afford to guarantee safe arrival nor replace the wormy combs.

It is the usual custom, in the delivery of bees and queens, to guarantee satisfaction and safe arrival. This puts up to the shipper the responsibility of making a package of bees that is up to a standard. If the carrier is responsible for delay or breakage, it should be up to the shipper to seek damages from the carrier. If the shipper does not guarantee safe arrival it will make no difference to him what kind of package he uses; and, no matter in what condition the bees arrive, he will come back with the statement that "it was not my fault." This is precisely what some are saying.

Another year, if we know ourselves, advertisers for bees and queens, in order to get in our columns, must put up a guarantee to meet certain specifications. Among them shall be safe arrival, good stock, good frames, good combs, from a yard free from disease or hybrid stock, and everything as represented. To ship hybrid bees for Italians or to send bees out of a yard that has foul brood, or to send bees two or three weeks after the time promised, to send poor or wormy combs—any and all of these things are a vexation, and lead to no end of controversy in which the publisher is involved sooner or later.

Honey-crop Conditions and Prices

REPORTS from the clover districts of the United States continue to be favorable. Clover honey at this writing, July 24, is still coming in, in most places, and it appears as if the flow might hang on for some days yet. While early in June we were getting too much rain, and were hoping we might have some dry weather, we are now getting to the point where there is too much of drouth, and we are now wishing for rain. A survey of the government weather maps shows there have been thunderstorms in many localities that will give a new lease of life to clover; but in most places a little more rain would be very helpful.

The reports show one, two, three, and even four supers of clover honey already on the hives, and more coming in. Out of all the letters received there is only one report of failure.

Clover seems to be yielding well, from Maine to the Dakotas, and from the northern states clear down to Tennessee. It began yielding in June, and in many localities it will be furnishing some honey even up to the first of August. This probably means an enormous crop of clover honey.

Late reports indicate that alfalfa areas may not come up to their usual average; but these reports are so meager that no definite statement can as yet be made.

The high price of sugar and the slight shortage in the alfalfa regions may have a tendency to hold up the prices on honey; but the probabilities are they will be easier than last year at this time.

To help stem the tide of a possible and probable drop in prices the A. I. Root Company has entered on a vigorous campaign of honey advertising. This will begin at an early date and primarily is intended to stimulate a demand for honey and to educate people to eat more honey. Now

that the price of sugar is soaring, we think it will set the good housewife to thinking. See later editorials for further particulars in regard to this campaign.

In the mean time, clover-honey producers should advertise honey in all their local papers. Get your customers to thinking about honey for general use, for canning fruit, as a table delicacy, and as an important food.

=====

Railroads Discriminate against Comb Honey in Western Territory

IN the new issue of the Western Classification, becoming effective September 1, and applying to territory west of Chicago and the Mississippi River, we discover that the rate on comb honey has been raised to double first-class, which means that all local shipments of comb honey, in the territory affected, of 100 pounds or more, and less than a carload, for longer or shorter distances, will have to pay double the freight after Sept. 1.

Without question the careless packers and shippers of comb honey are responsible for this advance in rate, and it seems decidedly unfair to those who put their honey in cartons or partitioned cases and then pack the cases in carriers, that they should have to suffer the penalty of paying such excessive freight charges, because of the large claims on comb honey improperly packed and shipped.

This question was up before the Western Classification Committee two years ago. At that time they proposed making the rate three times first-class. We learned of the proposed change before the meeting of the Committee, and arranged for a hearing. As a result of this hearing the rate was left unchanged; but we were given to understand that unless there was a decided reform in the method of packing and shipping comb honey, so as to reduce the number and amount of claims entered against the railway companies for breakage, they would be compelled later to make a change in the classification.

We have since then uttered repeated warnings, and have endeavored to institute a reform in the method of packing comb honey; but there have been too many penny-wise-and-pound-foolish producers who were not willing to pay the price of adequate protection to their very fragile product, and as a result all producers of comb honey must suffer by paying a double freight charge on all local shipments.

But we need not accept without protest the ruling of the Western Classification

Committee. In the Official Classification governing the territory east of Chicago and the Mississippi and north of the Ohio, comb honey protected by carriers is carried at second-class rate. If the producers and associations of beekeepers interested will take prompt and united action, and will write to R. C. Fyfe, Chairman of the Western Classification Committee, Transportation Building, Chicago, Ill., protesting against the discrimination, and asking for provision for a lower rate on comb honey properly packed and protected for shipment, we may still hope to obtain some redress.

=====

Hand Extracting vs. Power Extracting; a Small Extracting-outfit at Every Outyard, vs. One Large One at the Home Yard

THESE two questions will invariably come up in the mind of every producer of extracted honey with outyards. There are some who believe it is more economical and more satisfactory to have a hand-power extracting-outfit at each yard. But there is another class, and it is growing larger, who believe it is more economical to have one large power outfit at home, and haul the combs from the outyard to the home yard, extract and return. One strong argument in favor of the latter is that the large outfit will do a more thoro and much cleaner job. We have definitely proven that a hand-driven machine cannot extract as clean as a power outfit.

Again, the conditions at the outyard are not usually favorable so far as a building is concerned for extracting. Practically all the work will have to be done in a small outbuilding or under a tent. If the extracting is near the close of the season, robbers will be ever present and annoying. Besides, they will be the cause of a general uproar in the yard. On the other hand, if the combs are taken from the hives and freed from bees they can be put into extracting-supers hauled home, and brought back again in very short order. Two men going with an automobile truck will clear the combs of bees while an extracting force at home can have a set of empties to send back; but suppose there are only two men to do the work. The combs can be shaken at an outyard, taken away late in the day, extracted, and brought back some time the next day.

The objection has been made that the central extracting-outfit at the home yard will cause more or less of a mix-up of

combs from the different yards, involving a risk of bee disease if one yard has foul brood. This does not necessarily follow. The combs of an individual yard can be kept separate with a central outfit for extracting, but it will be necessary to wash out and clean thoroly the extractor and the tools for doing the work for each individual yard. They ought to be cleaned anyway, and hence the risk of bee disease will be no greater in the one case than in the other.

We have been in quite a number of extracting-yards where a little outfit was used in each yard. Some of the worst robbing fracasces we have ever seen was where extracting was carried on in an outyard building or under a tent, and where it was practically impossible to screen out robbers. When we consider the further fact that a central outfit will extract ten per cent more honey, the outyard operator can hardly afford to consider the individual outfit.

Of course, where one has only one apiary, and does not expect to make a very large increase, a small hand-power outfit is the only thing that can be or should be considered.

Is it Possible to Secure Samples of Honey Each from One Individual Source, without Admixture from Some Other Source?

A CORRESPONDENT has written, saying he would like to secure several samples of clover, basswood, alfalfa, mountain sage, orange, buckwheat, each without the mixture of any other honey, for exhibition purposes at this county fair. He wishes to know how many of these he could secure, and how he could vouch for each being free from any other honey. For his benefit and that of others, it may be well to make a general statement.

Most years, and especially this year, it would be possible to secure a pure clover honey. Indeed, where there is no alsike grown one may be able to get a pure white clover; but as a general thing clover would include alsike and white, with a little of red, perhaps. Some years it is possible to secure a pure basswood; but usually it will have a little admixture of clover, because in most localities basswood begins before clover is over. But the aromatic flavor of basswood is so pronounced that if it is two-thirds basswood and one-third clover it would naturally be classed as a basswood honey. Generally speaking, we would say it would be difficult to get a pure basswood without clover; but for educational purposes a sample of honey that is largely basswood

would answer quite as well as one that is basswood only. The same statement might be made concerning buckwheat. The flavor is very pronounced; and even if there is an admixture of aster, goldenrod, or clover, if it is two-thirds buckwheat it will be classed as a buckwheat; but we doubt very much if there is any such thing as pure buckwheat honey, as there will probably be something else in bloom either at the beginning or at the close of the buckwheat flow.

A pure alfalfa honey can be secured in many localities; for when alfalfa is the only source of nectar it can be had in all its purity. The same may be said of mountain sage up in the mountains, because nothing else may be in bloom at the time, altho there may be alfalfa in the valleys, and orange in the groves. Mountain sage, while largely such, may contain some orange and perhaps a little alfalfa.

There are some seasons and some localities where pure orange honey can be produced. Last year Prof. Baldwin, at De Land, Fla., produced an orange honey that was as nearly pure as it is possible to secure, and it was indeed a beautiful honey. But usually orange will have a little of palmetto, and perhaps a little gallberry. Orange in California will have both alfalfa and perhaps a little mountain sage, altho there are seasons and localities in California when the pure article can be produced.

When it comes to the fall honeys, they are generally mixtures of everything. In our locality the asters and goldenrods will have a little buckwheat, and perhaps a little second crop of red clover. There are some localities in the western states where pure heartsease may be secured; but heartsease will generally have a little aster and goldenrod mixed with it.

For general trade purposes we would say that a honey that is two-thirds basswood, two-thirds sage, two-thirds orange, two-thirds alfalfa, could be sold under the name of the two-thirds source. For example, a basswood that was made up of one-third of other honey could be sold as basswood, because it is very difficult to get basswood that does not have at least some other source. Whether it would be safe to bottle honey and label it as a basswood under the federal law we do not know. Generally it is wiser to err on the safe side, and call the honey somebody's brand of pure extracted, not naming the exact source. As a rule it is not possible to secure, year in and year out, any one flavor; and large bottlers are in the habit of making up a blend of several pure honeys and keeping that blend entirely uniform from year to year.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



MRS. ALLEN wonders, page 522, whether bees would suffer drones in a super till the general drone-slaughter. In cases I have known, whether it was the indoor confinement, or whether they were starved by the bees, it was not long before they were all gone, and nothing left of them except their polished thoraxes lying on the excluder.

"AN ORDINARY frame of sealed brood" is pictured on p. 488. Is that a fair sample taken from a good colony in the height of the breeding season? So many unsealed cells among the sealed do not seem entirely satisfactory, altho it may be all right if the picture be taken rather late in the season, when laying has become more scattered. At any rate, such a frame is hardly the ordinary thing in my hives in June. [The comb was not shown because it was perfect or normal for the time of year, but because it showed all kinds of brood, worker and drone, sealed and unsealed. Perhaps we ought to have had another frame showing all the cells sealed. But our main purpose was to illustrate to the novice the difference between the different kinds of brood. Perhaps the word "ordinary" is not quite the correct qualifying adjective. We will change it when it comes out in book form.—Ed.]

THE last paragraph, p. 549, intimates that when a queen becomes a drone-layer she lays two and three eggs in a cell. I wonder. I'll tell you what I think, subject to correction. When a queen becomes a drone-layer she has the same instincts as before, will lay in the same kind of cells, and the same number of eggs, only they'll all produce drones. A laying worker seems to consult her own comfort, and prefers the larger cells because more comfortable. (I saw one once laying an egg in a worker-cell, and her wings were crowded up about her head so uncomfortably that I don't wonder she should want a larger cell.) So when each drone-cell has an egg she prefers to duplicate them rather than to use a worker-cell. A queen-cell is still more comfortable, and three times as many eggs may be found in a queen-cell as in a drone-cell. But when scarcity of larger cells obliges laying workers to use worker-cells, there's one egg in a cell; and until the cells are sealed you can't tell the work from that of the best queen. At least that's the way "in this locality." [When we read over your first sentence, referring to page 549, we felt

sure you must be referring to some correspondent, because we certainly believed just what you say; but when examination showed that you were referring to our own statement, we have to confess we did not say what we meant, because we had in mind laying workers. It is true, just as you say, that a laying queen that turns drone-layer does not lay eggs like a laying worker; but a queen that never met a drone, and never laid worker eggs, will behave very much like a laying worker. Thanks for your correction.—Ed.]

"RELIABLE estimates show that the total amount of honey produced is not far from 200 million pounds," page 547. That sounds like such an enormous quantity it seems there must be some mistake about it. But when we remember that that's to feed a hundred million people, what a stingy morsel it is! Less than a tenth of an ounce a day for each individual! My daily ration is 15 to 30 times that much, and I'm a very small eater. The average beekeeper does a lot of grumbling because he isn't better paid, and I don't know that I blame him. But let him take comfort in the thought that he's engaged in a work of true philanthropy with every pound of honey he produces, in helping to bring up the annual average from 2 pounds to 50 or more. I'm not getting rich producing honey, but I'm taking pride in knowing that I'm doing my little share toward making the people of this country just a little healthier and happier because of the honey they eat. [The government census shows 100,000,000 lbs.; but from reliable data it is very evident that it would be safe to double these figures and make it 200,000,000. The census took no account of beemen in cities and towns, and many of the large producers live in town but operate their outyards at points remote from town. Furthermore, the canvass at conventions and elsewhere shows that some of the large producers furnished no figures nor estimates to the census enumerators. This year we shall not be surprised if the actual gain in honey would be nearer 400,000,000 lbs.]

Yes, it is a comforting thought to feel that, while we are not only getting a living out of our bees, we are helping other people to live longer. When the world wakes up to the fact that the carbohydrates are energy-producers, and that honey stands at the top of the list, and that it is partially digested, the demand will be a great deal larger than it is now.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Well, Dr. Miller, I surely thought it was the little bee's antennæ that held that tiny egg that blew away so quickly. The mistake, as you suggest, must have been due to inaccurate observation, for it was not mere careless reporting. Thanks for the correction, tho it does force me to un-see what I seem to see very clearly in my mind's eye.

One thing that I *have* seen accurately, tho, and as you see it, is the beauty of the dandelion. I am glad you love it too. A field of them is so beautiful that history's famous Field of the Cloth of Gold on which the two great kings met seems a dead unthrilling thing by contrast.

* * *

As to the queen's preference for new comb, we have often remarked it, having frequently found the queen laying in comb only partly drawn, even when not forced to it by lack of room.

* * *

Mr. Scholl says, page 471, "It is possible to take off more than a thousand pounds of honey in half an hour." My marginal comment, in the light of our own recent experiences, reads merely "Whew!" May I repeat it here? *Whe—ew!*

* * *

There are certainly plenty of fine suggestions in that special advertising number—national honey week, honey stamps, and all the splendid schemes for co-operative advertising action. The next thing is the co-operation and the action.

* * *

May with her lavish clover bloom raised high hopes in the hearts of Tennessee beekeepers; but June with her uncompromising rains laid them low. The crop seems to be merely an average one, probably slightly under a hundred pounds per colony, judging from reports received. Considerable of the new crop is already on the market, and the quality is unusually fine. The constant rains have interrupted many attempts at extracting, causing many beekeepers merely to mark time. The worst of this rain, tho, is the really serious damage being done further south.

* * *

While Mr. Allen was carrying those heavy supers from the wheelbarrow up the steps into the house (for of course we do our extracting in the kitchen) I could do

nothing but stand by and give moral support and open the screen door; but whenever he got hold of one of the new supers, purchased this season, I could and did join him in a strenuous objection to the lack of hand-hole cleats. It seems to me that, even if I were strong enough to lift seventy or eighty pounds, I'd rather not have to do it with just the tips of my fingers.

* * *

We were puzzled at finding a laying queen in one extracting-super, with brood in all stages from eggs to sealed worker brood. It is true we had raised considerable brood one time and another, but were always very particular not to put up the queen. This one we found wasn't clipped, anyway, so she almost certainly wasn't put up from below. As we sometimes failed to look later for queen-cells above, the bees might easily have reared a queen; but being over the excluder, she could not have been fertilized. Yet there were the eggs, and we are still puzzled.

Then we did a silly thing. Not knowing from which colony this particular super had come, and being rushed and busy as perhaps only backlotterers are apt to be about their extracting, we just set it out in the yard on a new stand, with its honey, brood, queen, the bees that had stayed on the combs, an entrance-contractor, and our best wishes. What the robbers did! We didn't mind their doing what robbers are supposed to do, for we had given them the chance; but they tore those combs almost completely to pieces, and we never saw the little queen again.

* * *

We have good-looking covers in your sense too, Prof. Baldwin, when they are well-painted and don't look sort of speckly. They do take a deal of painting, tho, don't they? Painting every five to ten years won't do for metal covers, as Mr. Miles, page 475, says it will for hives—not, that is, to keep them looking well. The only other thing about these covers that distresses me, for I am very partial to them, is their well-developed talent for getting insufferably hot. I realize there is an air-space below; but even at that, it seems as tho when they are so hot that I can scarcely bear my hand on them, as they are in a hot sun, when unshaded, it must be decidedly and uncomfortably warm inside. We have resorted to shade-boards a few extra-warm days this season—when it didn't happen to be raining.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Mention was made in my last batch of notes of the fact that the acreage of buckwheat was likely to be high. With the sudden change from very wet to very dry weather, the land lying idle has baked so hard that comparatively little has been worked hard; and, as a result, the acreage of buckwheat, instead of being heavy in our locality, will actually be smaller than usual. But with the present program of 16 hours or more a day looking after the bees during clover flow, we are not doing much thinking of a possible dark-honey flow later on.

The Weather Bureau at Toronto officially reports that we had 24 days in June in which rain fell at that station. As we are but 25 miles from that city, it is needless to say we have had all the precipitation that was needed. But we have had a change just as decided, as the most anxious dry-weather wisher could have hoped for; and at this date, July 12, many are thinking that a nice shower would be acceptable again. What changeable mortals we are! and how hard to satisfy!

After all the heavy downpours of June, on June 26 here in York Co. old Sol decided to show his face, and we have now had 18 days of warm bright weather. Clover started to yield the day the weather cleared, and we have had a steady flow ever since, and a fair crop seems to be assured. No honey has come in during the forenoons, and even in afternoons the flow has never seemed to be heavy, as, for instance, in 1913. Yet the *supers seem to fill up*, and that, after all, is the most important test of a honey-flow.

WHAT WILL THE HARVEST BE?

Before these notes appear in print, no doubt the Honey-crop Committee will have met and considered the question of prices for the current year, and will have advised beekeepers as to their opinion in the matter. In the meantime the question of prices to ask seems to be a rather hazy proposition in the minds of many. Nearly if not all food products have gone up in price. In some cases—sugar and meats for instance—the rise is about 100 per cent over two years ago. Will honey sell at a much higher figure than it did last year—that is the question many are debating.

Present indications are that the crop will

be fair over Ontario, as the abundant rains of May and June were general, and present fine weather is also general. If people believe or can be taught that honey is a food as *cheap* as or cheaper than many other articles of diet, then honey should sell at quite an advanced figure over last year. If, on the other hand, the consumers decide that honey is a luxury rather than a food necessity, then higher prices would curtail consumption. Much will depend upon size of crop, and also on the apple crop—the latter at present looking none too good in spite of rosy prospects earlier in the season.

ENCROACHMENT ON BEE TERRITORY.

Page 386, May 15, Dr. Miller refers to the matter of a law in force in Australia that defines the limit for a beekeeper to place an apiary, and forbids others encroaching on such premises. Some time ago Dr. M. and yours truly had a rather verbose argument on this same question, and I suppose both chaps were of the same mind as before the discussion started. I have no desire to debate the question further at present, but simply wish to remind the good doctor that conditions are very different in Australia from those in the more closely settled parts of Canada and the United States, where so many beekeepers reside. In Australia it is a common thing in the sparsely settled districts for neighbors to be miles apart, the country being given over to ranching almost exclusively. It is easy to see how such a law as we have under discussion might be workable under such conditions, and just the opposite in a thickly settled country.

No, Dr. Miller, much as I might desire, from a selfish viewpoint, to prohibit others from keeping bees in my neighborhood, I do not for a moment see how, for any reason whatever, I could object to a man, owning property near me, keeping bees. But there are cases where *beekeepers* (by this I mean those who follow the business as a specialty) have actually started large apiaries within two miles, or even closer to apiaries of long standing. That is a different matter altogether, and often, I am compelled to admit, it would make almost any one engaged in the business wish that such a law as that mentioned might be incorporated in our statutes. But I haven't the slightest hope that such a law will ever be enacted, so I do no worrying about these things, for, after all, the *thing generally adjusts itself satisfactorily in time*.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



The Boulder County Fair will be held September 5 to 8 inclusive, at Longmont, Colorado. The premiums for the Apiary Department amount to \$75.00, which is an increase of \$50.00. The amount is sufficient compared with premiums offered in other departments. The Boulder County Fair is equipped with the best buildings and grounds of any county fair in Colorado, and the attendance will undoubtedly be very large.

Grasshoppers are reported very bad in places, and the farmers are beginning a fight on them. Alfalfa was not injured by late freezes, except in a very few localities. Horsemint was injured by freezing, however, and also suffered by the drouth in June.

The bees were checked in their swarming preparations according to rule this year. Just as swarming was about to get under way the alfalfa was cut, and sweet clover was not yielding sufficient to keep up swarming preparations. We shall doubtless get swarms in August this year, if the flow is good, but we look for the swarming proposition to be easily controlled this season.

The weather has been very unfavorable in Idaho, but there will doubtless be some honey produced this year for shipment. Colorado, as a whole, has had a flow from the first alfalfa, and the bees are well started in supers; if sweet clover and alfalfa will keep them going, things may come out well. A bumper crop will not be harvested unless there is a quick change in the matter of moisture.

SWEETEN BERRIES WITH HONEY.

The Colorado Honey-producers' Association is distributing among the fruit-grower beekeepers near Denver thousands of little slips printed with these words: "Have you ever sweetened berries with honey? If not, try it! It is delicious!" These slips are put in the bottoms of the berry-boxes; and when the berries are emptied out, there is the slip for the lady to read. It will have a wonderfully good and stimulating effect, now that the price of sugar is so high. There is no patent on the idea, and beekeepers are urged everywhere to copy it. These uses of honey, where honey is so manifestly superior to sugar, should now be pushed. Honey for sweetening coffee is fine where

the quality of honey is the best. For sweetening lemonade, honey is not as desirable as sugar, in the writer's estimation.

DROUTH HURTING SWEET-CLOVER FLOW.

The first crop of alfalfa is now (July 6) all put up, and sweet clover is in full bloom. The flow from the first crop was better than it has been for several years. It is exceedingly dry, and a few good rains would mean much to the beekeepers of Colorado. If we do not get rain, the yield from the second crop of alfalfa will be light and the flow from sweet clover will be very small indeed. The precipitation is about four inches below normal, and all we can depend on now is snow, which is melting very rapidly these hot days.

SUPERING.

It is well to remember that all comb-honey supers should go on top until the second crop of alfalfa proves what it will do in the way of nectar secretion. Lifting supers and putting empty ones beneath, during the first alfalfa flow, is poor practice with most colonies. If we had all colonies like the best, it would be different, but we never do unless we have but a few colonies. When the second alfalfa blooms, then we can judge pretty well whether supering may be liberally done. It is always safe to keep an empty super on top as a safety-valve.

HONEY PUBLICITY.

A few years ago the raisin-growers of California were up against a glutted market, and they began a publicity campaign, carrying it forward with such efficiency that there was no railroad running out of California but that served raisin bread, and *raisin bread only*, on their dining-cars. I have been in dining-cars when I could get no plain bread. I have never liked the raisin-growers for this, for I do not like raisins in my bread. Let them push raisin pie all they wish to, but stop putting raisins in bread for me. And I hope that honey publicity will keep fairly within the realm of common sense. I boost honey all I can; but I don't like honey in my tea, coffee, or postum, and maple syrup tastes just a little better on hot cakes than does honey—probably because we have honey on the table every meal, and maple syrup is a scarce article. There is a limit to honey publicity, and we must use it or we shall do no permanent good.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Weather conditions have been most peculiar since early in June. It rarely happens that so much fog is present during that month; but what is still more peculiar is that it has continued down into July.

Today, July 13, the fog was exceptionally heavy in the early morning, with a sultry heat during midday that was torture, and this is only one day of most of them so far this month.

A joke is going the rounds which involves one of our honey-buyers in a not altogether favorable light. Honey samples sent this particular buyer were believed to be graded far from the lines that their similarity in color would justify, and so to test the matter four samples were taken from the same 60-pound can and mailed to the buyer by four different beekeepers, and, strange to say, each was given a different grade, and a different price quoted.

G. W. Bercaw, page 489, June 1, after reciting approved plans for handling bees, says, "When putting the excluders between the supers if is a very good plan to examine each comb below and cut out all drone comb that may show up." Well, Bro. Bercaw, in this day of foundation and wired frames the beekeeper is not supposed to be parading around his apiary with a big knife and basket to round up drone comb. Besides, if he is the right kind of beekeeper he would know long before spring time that there was drone comb in his frames and where to find it.

Mr. Editor, you say, page 523, July 1, in your footnote to my paragraph on powder-paint, that "Cold-water paint is certainly better than no paint at all;" then, further, "the hot sun checks the wood because the dark color of the weather-stained wood draws the heat." If color is all that is desired, why not use whitewash as a still cheaper article? I have a friend who uses whitewash on all his metal covers to reflect the heat, and claims it to be better than paint. Of course, that is on galvanized metal that needs little or no protection from the weather; but if it will reflect heat from metal it will also from wood—but paint for mine. I have hives in my apiary that have been in constant use for 28 years that are in perfect condition, and I will not trade even, with a gentleman whom I know

who has some hives 18 months old that have not been painted.

A CASE OF UNEVEN EXCHANGE.

A short time ago I found a colony headed by a laying worker; and as it was an unusually strong colony I decided to give it a queen at once. I removed two combs from the center of the brood-chamber and filled the vacancy with two combs of brood with adhering bees and queen from another colony. The two fertile worker combs with the adhering bees were placed in the colony where the queen had been removed. I was gratified to find the queen I had transferred to the laying-worker colony busily laying the following day. As I was engaged in raising some virgins I decided to give the queenless colony a stick of cells to care for and finish. In a few days I examined to see what progress they were making with my cells, when, to my astonishment, I found no cells at all. I made a thoro search to find the trouble, and, to my surprise and disgust, discovered that I had transferred the laying worker to the other colony, and the bees seemed to think I had done them a great favor in the transaction. Well, the joke is on me.

THE LIFE OF A BREEDER.

The purchasing of high-priced breeding queens to be transported a long distance thru the mails is very discouraging, to say the least, when mailed in the ordinary breeding queen-cages. It is my opinion that all breeding queens that are very valuable should be shipped only in nucleus hives accompanied by sufficient young bees to keep up their normal condition while in transit, old bees being eliminated as much as possible. This season I ordered queens for trial purposes, both the Golden and ordinary Italians. For these I paid anywhere from \$3.50 for extra select tested to \$10 for guaranteed breeding queens, to say nothing of those that were sent me free of charge to enter the tryout. One of these queens was sent in a three-frame nucleus, and is in the best condition of any. One, after twelve days, had laid no eggs, and was returned to the sender. One disappeared after some two hundred queens had been raised from her. One, after ten days of open-hive life, has laid but a few eggs. One shows ordinary laying qualities, while the tendency of all much traveled queens seems to be to retire in favor of younger ones, shortly following their introduction.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



IMPROVING THE BEES.

"What is being done along the line of improving bees by selection in breeding? There is a whole lot of talk about it; but who is doing anything? All know that there is a great difference in colonies as regards results in honey storing; but what are we doing about it? Those who keep bees, with possibly a few exceptions, keep them for the profit they may yield; and it is quite safe to say that, when they cease to yield a profit for several years in succession, they would cease to have owners; and if they existed at all it would be in the wild."

I will give a bit of my history, and advance a few ideas which may be worth thinking about. I commenced beekeeping with black bees, and possibly might have given up the pursuit in disgust had not new hope dawned by the introduction of the Italian bee. When the seasons were propitious results were satisfactory. Two or three years of unfavorable conditions showed that these bees could not "stand grief." The wax-moth was very troublesome, and weak colonies would be greatly injured or put out of existence, the combs either being entirely consumed, or so much spoiled that when the bees came to fix them up they built drone comb. Thousands of drones resulted, which consumed much of the honey.

The black bees were much disposed to rob. Like some people they must do a big business or nothing. Then in a poor spring they were prone to desert their hive and swarm out, leaving brood, honey, and all the conditions one would think favorable to contentment, such as clean comb and clean hive. After flying like a natural swarm they would either alight or try to force an entrance into some other hive already occupied, and if they succeeded in gaining an entrance they were sure to be killed.

In 1873 I procured my first Italian queen, raised queens from her, and gave these young queens to about half of my colonies. The next spring I kept a careful watch of proceedings, and find this jotted down in an old diary of a year later: "I find the Italians proof against the wax-moth. They do not desert their hives in early spring; and whenever a small amount of honey is obtainable they will secure that and gain in stores, while the black bees require feeding." This settled the superiority of the Italian bees, and I soon had only Italians.

But when the black blood was all eliminated I found that the Italian bees were

not all alike profitable. Previously my thought had been that the queen that would lay the most eggs must certainly be the best. That idea proved to be a mistake. Some queens producing not nearly the number of eggs that others did would give much better results in surplus honey. A few years of experience will convince any that it is not the most prolific queens that will have the strongest colonies at the beginning of the clover flow, or give the most substantial results for the season. These facts being known, it remains for the beekeeper to state the reason why. If we cannot account for the fact of one colony collecting one-half more to twice as much as another in the same apiary, we can take the short cut and supersede the queens of the less productive ones with stock that gave twice as much. I have practiced this plan to quite a large extent during the past 35 years, and results show that it has not been in vain.

We have been told by the successful honey-producers that the introduction of new blood helps much by way of avoiding the evil effect of inbreeding. This can be brought about by bringing home colonies or queens from out-apiaries, by exchanging queens with other successful apiarists, or by an occasional purchase of a good queen.

But some one may ask, "How do you account for the difference in productiveness?" This is not always easy to tell. I incline toward the longevity and vitality of the workers of certain queens as being very desirable. When workers hatching from August 30 to September 10 were found doing a "land-office" business at gathering nectar from the clover bloom on June 25 to July 4 of the next year, I lost no time in rearing young queens from their mother, so that these young queens could replace all inferior stock in the apiary; and as the mother of this longevity stock showed a disposition to place the maximum number of bees on the stage of action at the blooming of clover, and when they entered the sections with their first nectar without a desire to swarm, I considered said queen of still more value. Such queens should be kept till they are two or more years old, rather than to have their lives "snuffed out" annually, as so strenuously advocated by many, that all colonies may be headed each spring with queens less than a year old. In this pruning-out of inferior stock, it is well to keep an eye out for vicious colonies. A vicious colony should not be tolerated any more than a vicious horse.

CO-OPERATION IN SELLING HONEY

THE UPS AND DOWNS OF THE CALIFORNIA ASSOCIATION

BY J. EDGAR ROSS

[There are a number of local co-operative honey associations in this country—The Colorado, The Imperial Valley (California), The Western New York, etc. We regret that we cannot give the full outline of the plan of the Colorado Honey-producers' Association, as this, we believe, is the oldest and most successful organization of the kind in the country. However, several illustrations of their store and warehouse were given in connection with Wesley Foster's article, Feb. 15th issue for last year, page 153. The histories of three of the other associations in this country are given herewith, together with the very interesting plan of our friends across the sea in New Zealand. Think of government inspection of honey!—Ed.]

It was about nine years ago that a few of Imperial Valley's pioneer beekeepers got together and formed an organization that finally led to the incorporation, on June 9, 1908, of The Imperial Valley Beekeepers' Association.

The organization was born of necessity, as most co-operative organizations are; but in this case the necessity was unusually acute. Beekeeping in the mountain districts of California is a precarious occupation, and there are very few of the mountain beekeepers who ever attain affluence. About once in five years they harvest a bumper crop of very fine honey. But in most cases it requires all of the proceeds, even when the price is a good one, to square up the old scores resulting from poor seasons. The beekeeper who can fight foul brood thru about four seasons, two of which may yield a moderate surplus, and feed thru two seasons of total failure, may bring thru a fair percentage of his colonies to gather the next bumper crop.

Imperial Valley recruited her pioneer beekeepers from the mountain sections of the state. Some drove in with a team of burros; others came in immigrant cars paid for with borrowed money. But not one drove in an automobile, nor even a Ford. The climatic conditions and honey-flow were so different in the low hot valley that different methods of management were necessary. That alone was sufficient to bring the beekeepers together for the purpose of comparing notes. But still more imperative was the necessity of finding a market for the crops of honey that came as regularly as the seasons, and getting cases in which to ship it.

There were no local honey-buyers, and no one who sold cases. Local freight rates to Los Angeles are prohibitive, so everything had to be handled in carload lots. This was too heavy a burden for any one of the early pioneers, so they were really forced to pool their interests.

The "gentlemen's agreement" plan under which they at first worked had some disad-

vantages. These they thought to eliminate by organizing a corporation and issuing capital stock at ten dollars a share. At first one of the members attended to the business of the corporation, which was of a very simple nature. When a carload of cases arrived each stockholder was notified to come and take from the car the number he had ordered. When a carload of honey was sold, each producer was notified to bring in his *pro rata* for shipment. But this plan also had its disadvantages; and as the beekeepers became more prosperous they felt able to afford better service.

The next step was to build a warehouse and employ a manager at a regular salary. To raise the additional capital needed, each stockholder bought enough additional shares of stock to represent an investment of twenty-five cents per colony for all of the bees he owned. A suitable building-site was leased from the railroad company, and a warehouse of ample capacity was erected where the freight cars could be shunted to one door and wagons driven up to the other.

To this warehouse the beekeepers could bring their honey at any time, set their price upon it, and, if they saw fit, take away a load of cases or other supplies which were charged to their account. When a carload was sold the proceeds were prorated among those who had offered their honey at the price secured; and after deducting twenty cents a case for handling the honey, and any charge that might be standing against each shipper, the checks were mailed to the individual stockholders. This plan relieved the producers of all the work and worry incident to the finding of a market, making up a carload, and shipping. There was no warehouse charge, no matter how long the honey was held. The charge of twenty cents a case on the honey sold, and a small profit made on cases and other supplies was ample to keep up the expense of the association and accumulate a small surplus. The arrangement was ideal, and the corporation was ready for the next step in its co-operative evolution.

Those who have studied American co-operation will know, without being told, the details—that the step following success is disagreement among the members and the formation of factions within the organization to strive for control of its affairs. The association had contributed very largely to the success of its members thru its credit, which was equal to the combined credit of all. But when some of its supporters got to the point where they were able to ship out their own honey in carload lots, and even ship in cases in the same manner, their co-operative ardor grew cold.

There arose a disagreement between the president and manager over a private business transaction in which the corporation had no part. The details are of no consequence. As a result of the trouble the president and his supporters withdrew their support from the association. The stockholders elected another president, and continued to prosper. Then came disquieting rumors that the ex-president was buying the stock of the disaffected ones for the purpose of securing control of the company. It was an ordinary stock company in which each share had a vote; and to guard against the danger of its passing into the control of one man hostile to co-operation, the stockholders met and voted to dissolve the corporation.

The stock had cost the shareholders ten dollars a share. The dissolution showed them to be worth sixteen dollars a share, and that was the sum returned to shareholders. Even the disaffected ex-president was satisfied with the settlement.

Steps were immediately taken to reorganize. In the new association no member was permitted to own more than one share of stock. To make up the necessary working capital each was required to loan the association, for five years without interest, a sum equal to twenty-five cents for every colony of bees in his possession at the time of organization. The association bought a lot where shipping facilities were nearly equal to the old location, and promptly erected a larger and better warehouse than the first one had been.

The affairs of the new association were conducted along almost the same lines as those of the old one had been, and it enjoyed one season of prosperity. Then came the old trouble, with new actors; new details cropped up, and the business of the association began to dwindle. It has been dwindling ever since. It has now almost reached the vanishing-point.

During its palmy days the association shipped 17 carloads of honey in a season,

when the entire output of the valley was about 25 carloads. Last year the output of the valley was 39 carloads, of which only three were handled by the association. It has neither working capital nor credit in the business world. The five-year notes to its stockholders are past due, and there is little prospect of their ever being paid. The association is virtually dead, and sooner or later the courts will preach its funeral sermon. When that time comes, the one thing that will save it from complete wreck is the fact that its real estate has trebled in value.

A few old wheel-horses of the organization are clinging to the wreck with more fidelity than business judgment. One of these not only gives his time without compensation to attend to the company business, but meets the overhead expenses from his private funds in the hope of a regeneration that will never come. There has been only one quorum of stockholders for more than a year, and that was secured by personally soliciting proxies.

The passing of the association should be regarded as a calamity to all the beekeepers of the valley, for its benefits have redounded to the non-member as well as the member. The first year I came to the valley I sold my honey at 6½ cents thru the association, while very little was sold outside of the association at more than 5½, and much of it brought only 5. During succeeding years there was less disparity in the price because that season taught the outsiders a lesson. The determination of its competitors to undersell it has made the price of bee supplies cheaper in Imperial Valley than anywhere else in the state. These are facts that even those opposed to the association are compelled to admit. Yet the organization has been permitted to die from lack of support.

Human nature is the same the world over, and every man wants to have his own way. Only the press of stern necessity will make him willing to yield it to another. Co-operation requires a yielding of the individual co-operators, and without the press of necessity it can never be a success. Beekeeping in Imperial Valley has been too profitable to make co-operation necessary. Individual prosperity was the rock upon which our co-operative ship stranded.

There are plenty of dealers in cases and other apiary supplies in Imperial Valley now. The producer is no longer forced to look for a carload buyer, tho many of them are able to sell in carload lots. Some of the Los Angeles distributors have a resident agent in the valley who will buy for cash any quantity of honey offered. Others send

a representative to the producer's door three or four times during the season. It costs us something to get along without the associa-

tion, but we can afford the cost in order to enjoy the luxury of having our own way. Brawley, Cal.

THE WESTERN NEW YORK HONEY-PRODUCERS' ASSOCIATION

BY WM. F. VOLLMER

This association was formed because of conditions that were, we might say, detrimental to beekeepers. It was a case of every one paddling his own canoe. This is a condition under which beekeeping does not exactly prosper. The honey was sold at any fair price, as every one was ignorant of what his fellow-beekeepers were doing. Now, we have not gotten together and advised any price; but the idea in general is to get together and learn what the other fellow is getting and doing, and so some improvement on methods will always be found. In unison of ideas, facts will always spring forth.

It has been found that something can be saved by buying supplies in a co-operative way. In regard to marketing honey, every member sells all he can locally, as the slogan of this association has always been, "Supply your local home trade first." Those that have more honey than their local trade requires are usually taken care of by some of the other members who may be able to sell more than they produce. So in this way we also co-operate in marketing.

Proper grading is always required. Aside from this there are many other ways that we can help each other. We have two meetings a year where all general subjects are discussed, such as standardization, breeding, new ideas in labor-saving devices, etc. I have never failed to see some good accomplished.

CO-OPERATION.

Taking the word "co-operate," which is, to work or act together or in unison, we are naturally confronted by many ideas; and to work together many conditional requirements are necessary. The more closely the efforts are placed together the more nearly perfect will be the achievement. Take, for example, the California Citrus Association (Sunkist); The Florida Citrus Exchange (Sealdsweet); The Alaska Pack-

ers' Association; The Chautauqua and Lake Erie Grape-growers, and many others, including also the Colorado Honey-producers' Association. In each of the industries we are forced to take notice of one thing in advance of all others: Each is located or built up in a locality as close as possible to the producers, which usually makes carload loading facilities more convenient to arrange than if the producers were scattered all over the country.

We will now look at some other lines in which co-operation is carried on, such as horticultural societies and co-operative creameries. These associations do not as a rule market in carload lots, as their markets are usually nearer and do not ordinarily absorb that amount—especially butter. Thus we will look to fruits and butter and see whether we cannot solve the honey question. Each grower or producer places his product in a package of uniform standard, on which is stamped the grade and variety of the product, and he is at liberty to sell where he pleases; or in case he cannot find a suitable market, some associations handle these products for their members, and usually have such warehouse facilities as are necessary to take care of the products in question properly. The essential thing in nearly all cases is to have a uniform grade as nearly as possible, and thus the selling proposition will be simplified considerably. Honey is, therefore, the hardest product to market because of its variety of flavors in different sections, and because the beekeepers have adopted so many different-sized packages.

Thus the different steps are, first, harmonization; second, organization; third, concentration, not only of the products but also of the minds of the persons involved and of their efforts. If these steps are all in harmony the inevitable result is action or co-operation.

Akron, N. Y.

CO-OPERATION IN NEW ZEALAND

BY E. G. WARD

The question of a steady market for honey at a remunerative price has occupied the attention of the leading beekeepers of

the Dominion for a number of years. Till very recently it was much "go as you please," and, as a consequence, the honey-

producer was at the tender mercy of the buyer, who often played one man against another to keep prices down.

Seven or eight years ago the idea of a co-operative association to handle the output was mooted in Canterbury, but fell thru. Taranaki and Waikato beekeepers had also been trying to establish a co-operative association. The idea took shape in Taranaki about three years ago, and the New Zealand Honey-producers' Association, Limited, was established. Correspondence had passed between leading men in New Zealand; and after a conference held in Wellington two years ago the remaining districts agreed to fall in line with Taranaki, and include the whole Dominion instead of following the idea on Provincial lines.

The aim of the company is to include all honey-producers in New Zealand; and the articles of association have been framed with this object in view.

One of the chief attractions to the honey-producer is the fact that, instead of having to pay for shares in cash, payment is made by deduction of $\frac{1}{8}$ of a penny per pound from the value of the honey sent in. It is compulsory for all suppliers to take one share for each four hundredweight of honey supplied, and power is given to the directors to allot shares on this basis, with or without the consent of the shareholder.

It is also provided that no shareholder shall compete with the company by supplying to the trade. If this is done, the directors have power to forfeit the shares held by the offender.

Shares may be taken up on a cash basis also, but this has not been done to any great extent so far.

A contract is in existence for the supply of a minimum of 100 tons and maximum of 500 tons per annum for a term of three years to a British firm. One year has expired. Provision is made to continue indefinitely if mutually agreeable. All honey exported is graded by a government expert, and paid for according to grade; but by

the selection of a suitable market and judicious blending the lower grades can be handled to the producer's advantage.

Honey for the local market is standardized, and, when necessary, blending is resorted to to bring the honey up or down to the standard.

As beekeepers in all parts of the Dominion are becoming shareholders, provision has been made to insure adequate and just representation on the directorate. The Dominion has been divided into seven honey districts, and the shareholders in each district have power to elect a director to represent them.

Up till now the distribution has been effected thru the ordinary channels—the merchant purchasing from the company, the retailer from the merchant. The most popular package is the two-pound tin, which is packed four dozen in a case.

The honey is received at the depots in 60-pound tins, chiefly in liquid form. Payment is made on the 20th of the month following delivery.

Unfortunately for the company the past three seasons have been very poor, so that the support given has not quite come up to expectations. However, one encouraging feature is that, wherever the company's honey has been introduced, a market is secured. The standard of excellence is high, and merchants prefer to deal with the company rather than individuals, on account of being assured of a continuity of supplies. The honey is sold under a registered brand—H P A.

Recent reports from the English distributing agent are decidedly encouraging. The company's honey may be obtained from about 3000 shops in the United Kingdom, including all the large stores in London, under the registered brand—N Z H P A. Window displays have been made, and a vigorous advertising campaign started, and, as a consequence, it is certain that all it is possible to export will find a ready sale.

Christ Church, N. Z.

A NATIONAL CO-OPERATIVE SOCIETY URGED

BY J. F. ARCHDEKIN

There is very evidently in progress the beginning of a great movement among the beekeepers of America. This movement is in the direction of better markets and better marketing facilities for honey. Every one is thinking about this subject, which is of vital interest. The exact form which this movement will assume is indeed problematical; but the goal to be attained is plain to

all. It is not my purpose to suggest any definite plan in this discussion, but merely to outline a few ideas presented by my correspondents, together with some of my own. Below is a letter that is typical of a number I have received.

Dear Sir:—I am a commercial traveler, and have kept bees as a hobby all my life, and enjoy a few hours among them each

week. The problem of marketing any product is a large one, and especially in marketing honey. In one community we find large supplies practically unsalable, and a few hundred miles away we find a keen demand. Could not the beekeepers put on an advertising campaign and sell their own honey? It could be carried into buying supplies, and every beekeeper would gain. Personally I should be glad to spend a great deal of my spare time in preaching the cause, and would not accept a cent. If each member paid \$10 a year a great deal of advertising could be done. I always feel that we are all one family, and all are working for the good of all. It is with just that feeling that I am writing you. C. D. McLean.

Windsor, Ont., Feb. 14.

I heartily agree with our brother. Co-operation has always been a distinguishing feature of the human race. It is true in every department of life. Look at the giant trusts and monopolies that have sprung up in recent years. They are composed of many single units. Why not let the beekeepers organize? If they do organize, will they stick?

If there is a set of rules to be followed by the members, how are they to be kept in line with the rules? How is the new organ-

ization to avoid the fate of the National in regard to the selling of honey? These and many other questions are going to be burning ones when the new organization appears. It will be national in its scope, and it is going to be a difficult matter to harmonize all the different sections of the country so as to benefit all.

Mr. O. S. Mullin, President of the Kansas State Beekeepers' Association, writes me, urging an organization of the beekeepers. I agree with him that the National Beekeepers' Association had a great opportunity before it at one time, but failed to grasp it.

The *Booster* is trying to accomplish the desired object, and I sincerely hope it will; but, like all other projects, it has weak points that will have to be overcome. I do not wish to be understood as criticising; but how many state vice-presidents do you suppose would attend a meeting at Chicago, or anywhere else for that matter? There is work ahead for the *Booster*, and trials and troubles; but I am for it all the time.

Bordlonville, La.

[See the following article by Wesley Foster.—Ed.]

THE NEW NATIONAL HONEY-PRODUCERS' ASSOCIATION

BY WESLEY FOSTER

The successful marketing of the honey crop of the United States is not dependent upon co-operative marketing associations, except in a few districts. Co-operative marketing, however, has been an important influence in the moving of the honey crop, and is bound to become more so. The honey-producer who has a near-by market and few honey-producing competitors needs little help from co-operative associations.

We have too few honey-distributing agencies that know the honey proposition. Individual beekeepers do not have the means, time, nor ability to build a honey-distributing business such as will aid the honey-producers in a substantial way.

The honey-producers of the West do not require a high-priced market, but they want, and should have, a stable market at a fair price. They want a marketing agency that will take their honey and advance to them a part of the value of the crop and get the remainder to them in a few weeks, or at most a few months.

The National Honey-producers' Association is an organization capitalized at \$50,000, and closely follows the organization features of The Colorado Honey-producers' Association and the Idaho Honey-produc-

ers' Association. It is made up of specialist beekeepers who, however, do not depend upon the Association to market all their honey. It is so far something in the form of a safety valve to help out in marketing when marketing is difficult. So far, the honey of non-members has been more largely handled than that of members for the reason that the members, doubtless, have better means of disposing of honey than many non-members.

The National Honey-producers' Association has its headquarters in Kansas City, Missouri, where a honey-store is maintained with a manager in charge. A salesman has been kept on the road as is found profitable. Sales direct to the retailers have been featured, while the jobbing of large lots is done when stocks are heavy and an opportunity offers. Honey has been handled in carlots from California, Arizona, Nevada, Idaho, and Colorado. It is not desired that the membership be large, for there is danger of having more honey produced by our membership than can be successfully handled.

The main features where we claim success has attended our efforts are that we are building substantially a honey trade among the thousands of retail grocers in the Kan-

sas City territory. Our trademark brands of honey are handled by over eight hundred grocers in Kansas City alone.

We are blending the white, mild-flavored honey with the darker, stronger-flavored grades from the territory we serve, and have learned to put out a product that surpasses in color (a beautiful golden light amber) the water-white, and in flavor gives more general satisfaction than the mild flavors or the pronounced grades. We put out a grade that can be put out in quantities the year round, and we have it always on hand.

Concerning the handling of comb honey, our members vary somewhat in grading methods; and while standardization is advocated, our market is so wide that various kinds of honey can be placed fairly well. If a member's grading is faulty, he hears from the manager and also suffers in the price secured, just as he should expect to. We do not expect to have to curry favor with the beekeepers, neither will they have to scrape to the association. If they are honorable and fair in their dealings, the business will be satisfactory all around. Beekeepers who can do business on business principles are welcome, and the other kind are not wanted. In fact, the best way for prospective members to do is to deal with the association some and find out whether they want to come in.

The prices secured for members have not been much higher than the market, but it has helped numerous beemen to dispose of crops that could find no market. It is simply a commission business owned by the beekeepers. Whether it succeeds greatly is not important; it has succeeded nominally. The beekeepers are learning to trust each other, work together, and put out a product more suited to the market. No single member of the association can put up a product so uniform thruout the year.

Our finances are still low, and we will have to wait and build slowly. This is as much an advantage as a disadvantage. Some funds have been advanced by the directors to pay part on members' honey. The beekeepers have been very patient in waiting for their money, and this helps in starting any co-operative enterprise.

Concerning the future of co-operation, the writer believes that it will not be many years until there will be a federation of co-operative honey-marketing associations for securing various desired objects, the development of more markets, the better distribution of the honey crop preventing a glut in any one place. This federation will doubtless be rather loose in form at first:

that is, it will not affect the local association's management to any extent. In time, the federation may be so centralized that it will dictate that all of a member's product shall be marketed thru his association, and thus thru the federation. This may never come, for the reason that beekeepers will not find it expedient or feasible to curtail the individual work of beekeepers developing their local markets. No association should hamper the beekeeper's activities along this line.

The various local associations organized into a federation would doubtless put out four or perhaps six brands of extracted honey to cater to the tastes of the various sections of the country, and use up the total surplus extracted-honey crop. There should be trademarked "baking honey," a trademarked "fruit-canning honey," and several brands of table honey.

The comb honey could be cartoned and trademarked to suit the market and the product. This trademarking is now done by our association and several others. If they all got together in a federation, it can be easily seen that something of the same, along advanced lines, would be taken up.

A conference of the various honey-marketing associations would be conducive of good results, and there will doubtless be such a conference before many years pass. Our association will gladly co-operate with others in the work.

THE NATIONAL HONEY-PRODUCERS' ASSOCIATION.

The president of the National Honey-producers' Association is Mr. D. C. Polhemus, of Lamar, Colorado. Mr. Polhemus owned and operated the honey business in Kansas City taken over by the association. He is a man of large experience in producing and marketing honey. His apiaries comprise more than two thousand colonies, and his honey sales are much greater than his own production. He is a man of standing in his community and enjoys the confidence of all who have done business with him.

Mr. G. P. Stark is the manager in charge of the Kansas City store. He has had large experience in the honey business in Kansas City, and is thoro, business-like, and straightforward in all his work, and is enthusiastic, and is building the business very substantially. Mr. Stark is one of the members of the association, and will be glad to have beekeepers visiting Kansas City call at the store, 928 Garfield Avenue, Kansas City, Missouri.

Boulder, Col.

HOW TO MEET COMPETITION

BY JAMES A. BROWN

Consternation reigned in Beedom. The aerial scouts had brought in startling reports of strange and mysterious operations among men. They had sat beside office windows and heard high officials talk of a new and marvelous product which should take the place of honey. They had heard the whirl of a thousand wheels where this new product was being manufactured. Finally, they had seen it advertised in great flaring letters, this mysterious substitute for honey.

All this could mean nothing but ruin to the business of the bees, they reported. The report spread until it had become a fact. "Our business is ruined—ruined!" they wailed.

Work ceased. Everywhere there was frenzied discussion. The workers proposed to organize a labor union and defend their rights to the bitter end. The queens became so perplexed that they forgot to lay any eggs. The drones moved a little more rapidly than usual, gorged themselves a little more than usual, and sagely offered a little more advice than usual.

The militarists, who were first to be heard, because loudest in their cries, were for immediate declaration of war, and for continuous bombardment of their competitors until they surrendered.

The ultra-pacifists, on the other hand (having fought for an opportunity to speak), proposed the appointment of a committee which should visit the manufacturers and solemnly protest, in the name of justice and on the ground of long preexistence in the business, and further kindly suggest and earnestly solicit the immediate abandonment of the offending project.

At this point, fearing dire consequences should the advocates of these widely diver-

gent views continue their discussion longer, the laziest and "wisest" old drone arose to propose a solution out of the fund of his "wide observation and experience."

The crisis was not really serious in his estimation. Undue alarm was being manifested. All that was necessary to save their business without sacrificing either peace or honor was to stop making honey and make this new product themselves. This was perfectly self-evident and logical. Nothing could be more simple or more sensible—to a drone, who had never done a day's work nor made a drop of honey in his life.

At this moment, however, two more scouts returned, weary to the point of exhaustion, but evidently bearing most important tidings. Not satisfied with what the others had seen, they had carried their investigations to the stores and finally to the consumers. In the store windows they saw large displays of the goods. Some went inside to buy, and the scouts followed these to their homes. Singularly enough, in every home they heard what might almost have been a stereotyped conversation:

"Pretty good, isn't it?"

"Yes, but it doesn't taste like honey."

"That's right; it doesn't. When I want honey I want the best the bees can make."

The bees' convention waited to hear no more. It rose *en masse* and rushed forth with a mighty roar of satisfaction. Very soon, wigwagging signals of joy to one another, each was in its accustomed place, working harder than ever. The life of Beedom was once more tranquil, and filled with deep contentment.

The bees had learned that the best way to meet competition is to do the thing you can do best, the best you can do it.

Warren, Ohio.

JUST HOW ASSOCIATIONS CAN HELP

BY R. DIEMER

With much interest I have read the articles in *GLEANINGS* and other bee-papers about marketing honey. Most beekeepers cry for higher prices, but do very little on their part to get them by advertising and developing their home market. Everybody seems to think the other fellow will do it also. The market for honey will not become better before every honey-producer, small or big, does his share in advertising and enlightening the public as to the value of honey. The first thing every beekeeper

should do is to give the public information about the value of honey as a food compared with other products; he must strive to keep his customer supplied the year round, not only just about six or eight weeks after the harvest.

Our main competitor is the cheap syrup, and we can combat that competitor only by showing the superior food value of honey, and bringing on the market a really superior product, all the year round, and at as low a price as the best grades of syrup.

We beekeepers must, therefore, try to produce as cheaply as possible. This is a point very much overlooked, and most beekeepers don't like to hear it. Everybody is crying for a living price, and thinks the other fellow should pay him an easy living, but he will do nothing himself. Work hard and try to produce cheaper, so you can sell cheaper and still make a good profit. What did you do last winter to be better posted on your business this season? Do you know all the tricks of the trade? If you catch only one new idea in a bee-book, is it paid for ten times over?

Having produced cheaply we must try to bring our product cheaply on the market. I think it is wrong to put up our honey in the finest flint-glass jars so that the container costs just as much as the contents. Very few housewives care for more jars when they don't need them. The canning time is gone when the honey comes on the market. It would be better if the container were so cheap that little would have to be added to the selling price of the honey. We must avoid as much as possible the small packages—the smaller the package the greater the comparative cost.

The attractiveness of honey in flint-glass jars is lost in cheap tin cans; but we must make this up by very nice labels. In none of the catalogs could I find a label that I wanted. I looked for an attractive label which at the same time would advertise and show the superiority of honey over artificial products.

The label printers should bring out new ideas, and not use the same cuts indefinitely. If a new label costs a little more, I am willing to pay it, and I think most beekeepers would do the same if they could get what they want.

In supplying our customer the year round with honey he will not think of buying syrup if he is once accustomed to honey. If the honey supply is cut off we force him to do this very thing. After

using syrups regularly ten months in the year, very few are willing to buy honey the other two months. They regard honey as an extra luxury to give to the children in teaspoon doses as a cough remedy rather than as a food. The market problem for honey is for the most part a distributing problem which could be better solved if we would try to distribute our product over the whole year. The trouble is that nearly every beekeeper is eager to dump his honey on the market as soon as harvested, to get rid of any further trouble.

WHERE AN ASSOCIATION CAN HELP.

Most of the smaller beekeepers, and many of the bigger ones too, will wonder how they can keep some of the honey over to the next season in order to sell it the year round. The honey will candy, and they have neither time nor proper equipment to liquefy it. All this trouble would disappear if there were a well-founded and well-managed association which could take over every pound of honey and grade and blend it so that there will be a uniform article the whole year round, so that every buyer knows exactly what he gets when he asks for California first-class light-amber honey or Michigan first-class water-white white-clover honey, etc. Hitherto there has not been the right spirit in an association. Every beekeeper should be a member, even if he has only two colonies of bees. Now, the big fellows overlook the small ones, and the small ones spoil the market in selling off grades of honey (sometimes big fellows do the same). We must try to get those little fellows, and teach them. The wise guy who knows everything you can't teach.

Local associations must federate into state associations, and they in turn must be federated into the national association. The national association can't manage local affairs, and the local association can't do national work.

Chico, Cal.

DROPPING FRUIT AND POULTRY TO TAKE CARE OF HONEY TRADE

BY INEZ A. BEALS

A hustler in the honey business, and a man whom some beemen and honey-dealers know, and others should know, is Mr. Herbert B. Phillips, of Auburn, Me. Mr. Phillips keeps but a few colonies now, altho he is increasing his number. He devotes his time almost wholly to the bottling of honey for his trade at home as well as elsewhere. His business is mostly with extracted honey, altho he handles a good deal of comb honey

and some beeswax. There is nearly always a call for good comb honey.

Mr. Phillips' home is situated about two miles from the business section of the city, and it is there that he keeps his bees and his storehouses.

His liquefying is done by steam. At the time we visited him he had about seven tons of honey on hand, and four or five more *en route*. His packages are very attractive,

the honey being put up in 15, 8, and 5½ oz. bottles. He also carries three and six pound cans which all bear his brand, "Hillcrest."

The individual-size bottle is used extensively in hotels near by, and the demand is increasing more and more, so dainty are they. Many summer visitors coming into Maine every year become acquainted with this brand of goods, and send to Mr. Phillips from their homes for the honey. Thus by parcel post his trade reaches to New York, New Jersey, Boston, and vicinity.

Mrs. Phillips is her husband's partner in the business. She thoroly understands it, and often demonstrates their goods in stores at home and in other cities, where their honey has become known. Their daughter is also a helper in vacation seasons.

An auto truck was added to the business last summer, which enables them to do more business in a much shorter time than before, and also to make trips to surrounding towns and fairs, advertising and selling their honey. This proves the value of the auto to the business man.

Poor grading in comb honey has been very bothersome to him at times. He once received a shipment from a producer where the sections in a case varied five to seven ounces. To one who deals honestly with all, such instances are discouraging and annoying. Care should be taken in grading all honey.

At the Phillips home (Hillcrest Farm) delicious small fruits are to be found—enough to make that a business alone, and



Herbert B. Phillips is an up-to-date Leekeeper and honey salesman who was forced to drop his fruit and poultry side lines to care for his honey business.

I think such was the case at one time as well as the poultry business; but the growth of the honey trade, and the scarcity of dependable help, make it impossible for Mr. Phillips to continue this part of his business.

Lewiston, Me.



Mr. Phillips reaches his customers in a truly up-to-date way.

BEES HELP SALESMEN

BY J. FRANK FOOSHE,
Market Agent, Roanoke Chamber of Commerce.

[Mr. Fooshe is a son of the well-known queen-breeder, J. D. Fooshe. Because of his former experience with bees he is eminently well prepared to use bees in his demonstration work.—Ed.]

In my work here as market agent of the Roanoke Chamber of Commerce I am using bees for a practical demonstration of the principles of marketing. For this purpose I have screened in a large transfer wagon so that no bees can get out. In this wagon I have a hive of typical three-banded Italian bees. When I get in the wagon on the crowded market square the people swarm around. I handle the bees without gloves, veil, or hat. I make it a point to explain to the on-lookers that there is no magic in my being able to handle the bees in this way, as I go in to do nothing that will disturb them, and to let nothing they do to me rattle me.

I have a twofold object in giving this demonstration in the handling of bees. First, I want to impress upon the large number of fruit-growers and truckers who come to this market each week the importance of handling their fruits and vegetables with the same care that is necessary in the handling of bees. Second, I try to emphasize the great possibilities of this mountain section for producing honey of the very best grade.

The slogan in my work is, "Reducing waste thru better grading, packing, and handling, the only way to bridge the chasm between *more* to the producer at *less* to the consumer." I am using every effort to impress this one truth of cutting out waste, however it may occur. I go right to the farmer's wagon and help him grade, pack, and sell the load he has brought in today, in the hope that he will bring his load tomorrow in better shape. As to whether he will or not, the large number of growers who were using the standard packages for tomatoes and peaches at the close of a month's work here last summer as compared with at the beginning is the best evidence. The principles of farm demonstration are just as applicable to selling as to producing. If the farm is a good place to help the farmer with his growing problems, certainly the market square offers a fine opportunity for helping him with his selling.

As to why I should select a colony of bees for trying to impress better grading and handling, it is easy to answer. The bee and its products represent the highest degree of perfection in marketing anything from the farm that I know of. If bees and queens

are to be put in the cage, each one must be handled with care. If honey is to be carried to the local market, or shipped to some distant point, a very high degree of care is necessary. The perfection with which bees do their part calls for the best methods in handling them at every move.

It is a matter of peculiar gratification to me to be able to use these bees for this marketing demonstration for the purpose of causing the people to think of and to put into practice better methods in the handling of their produce. It is to the bee that I owe my college education, for the bee money at our home in South Carolina was the educational fund, set aside for this specific purpose. While I had not been in a hive of bees for several years till last week, I was delighted to have this experience again. It added greatly to my pleasure to have Mr. C. E. Layman, of Troutville, who furnished me with the bees and all supplies for this demonstration, tell me that several years ago he had secured from my father the foundation of his present breeding stock. I have never taken much stock in bees having knowledge of people; but if there is such a thing, these bees seem to have met an old friend of their parents, for I never worked with any more kindly disposed bees at any time.

Another most gratifying matter to me is the number of people who are wanting information about bees. Some want to transfer from the old-fashioned box hives to those with movable frames; others want to Italianize their bees, and still many others want to get started in keeping bees. The number of business inquiries from the first day's demonstration is a striking instance of the principle for which I stand in my marketing demonstrations. Instead of government experts and college professors running all over the country to speak to a handful of men here today and several hundred miles away tomorrow, some advantage should be taken of the large number of farmers gathered about the market square to preach the gospel of better farming, including both producing and selling. I am an ardent believer in the church as the staying factor in our social and business life; but I am just as enthusiastic over the work of the Salvation Army as a powerful agency in the advancement of his kingdom.

Salvation Army methods are needed for reaching farmers who have not been reached in any other way.

As a further illustration of how the men on the market square may be used for helping to carry forward the gospel of improved methods in the handling of produce, I am sending out this week five thousand government bulletins on the care of butter and eggs. These are being sent thru the large number of country peddlers who come to

this market each week from the far-back mountain country, most of them coming 30 to 75 miles. Two bulletins are being put in each package to be delivered at the homes from which these peddlers buy their produce. They have entered enthusiastically into the plans of this organization for securing better marketing conditions. They are our missionaries for helping to build up the surrounding country.

Roanoke, Va.

ARE YOU A SALESMAN?

Some Conditions of Honey-selling and Some Suggestions

BY ARTHUR C. MILLER

So you have a fine crop of honey to sell. Well, what is it and what are you asking for it? You say it is a bright light amber, of good flavor, and should be worth 9 cents; that Jones & Company offered 7½ cts., but you are going to hold for more.

In that paragraph is summed up about all that the majority of producers know about the selling of their crop. Some of the things which they don't know are just where their crop really does grade as to color, flavor, and body; the amount of similar honey within, say, five hundred miles; the general crop of honey the country over; the amount of honey the local market will consume; the amount likely to be offered in that market; the best distant market to ship to, and the level of prices as compared with previous years. Every one of those items is complex, and the knowledge necessary to form an intelligent answer to any one is not to be acquired off hand. Relatively few producers know where to look for the desired information, or, after securing it, know how to use it to advantage.

But even if accurate knowledge is possessed of size of crop and of level of price, the quality of one's own crop may not be known. And on that quality will depend its ready or slow sale, as the case may be. I may think my honey is "fine;" but if it possesses some peculiar flavor, is a little light in body, a trifle "off" in color, quick to crystallize, or, for want of thoro curing, lacks good body, it will not bring the price I expect. Under such circumstances I shall probably find fault with the buyer, overproduction, etc. If, on the other hand, I have educated myself as to honey flavors, colors, and bodies from many places, and have learned what types the different markets demand, then I can intelligently judge of my own crop, and of its quality and value. If you have not that knowledge,

just send samples of your crop to half a dozen of the handlers who are well posted, and ask them to give you its "grade." The "grade" you must know before you seek a market.

Knowing the grade, where will you sell? Bless me, how should I know? To be sure, I am writing this to try to tell you something about marketing; but, not knowing your selling talent, I can only tell you to study *yourself*. If you are a good salesman you can create a market where the other fellow says there is none. To illustrate: The producers round about a New York state city said the market was glutted, and that they could not move their honey at any price. Another producer from a hundred odd miles away dropped into town for a convention, and before sessions "kind of sauntered around town" as he put it, and took orders for a lot of honey to be shipped in from his place. He was a *salesman*. If you are not, then you can well afford to pay a very liberal commission to such a man to market your crop for you. Find out what you are.

Know your market. If you are a really sure-enough salesman, you will learn it before you have called on many people. If not, you must keep at it until you find out what sort of packages and kind of honey the market wants. This for selling to retailers. If selling to jobbers, *they* will determine whether they can use your honey, and they will bid as low as they dare. Then if you know the amount of crop and price level, you can jockey with them. If you don't know those things you take their price or keep your crop save in the rare years when the supply is far below the demand. And if the agricultural schools keep turning out a fresh bunch of beekeepers every year, those rare years will soon become as rare as hens' teeth. And it depends on the point

of view whether that will or will not be an evil.

Now, here is a secret. I don't tell it to any except a favored few, because I don't want to get the masses to plunging into the honey business. Among ourselves we all know what a bonanza honey-producing is; how a swarm of bees put in a \$4.50 hive will give 400 pounds of honey, which, if we retail it ourselves in any of the big cities, will bring us \$100, and that all we have got to do is to keep all the bees we can care for. When we allow for a poor season now and then, and for a lower price now and then just to crush some presumptuous competitor, you know, we can surely average \$75.00 each; and if we are smart, and hustle, we can take care of a thousand colonies without help—that of the wife and children doesn't count—so that the only problem which really confronts us is that of marketing. Now keeping this secret to yourself, and bearing in mind the great possibilities, you will more fully appreciate the vital importance of the selling, and to which I will now return.

Having found out what your crop is in quality, go out into the wilderness—of the city—and study the ways of the wild creatures. See what sort of packages are in use. There may be none; and then, oh rapture! there is a virgin field before you. But study packages, labels, etc., then get some for yourself.

I would tell you to get a nice jar and a neat label; but before I do, I will ask you what constitutes a nice jar and a neat label? Judging by much that I've seen in the various markets, I think very few honey-sellers have a clear idea of what is "nice" or "neat." Most labels are an agonizing jumble of type and color, very interesting curiosities of the lithographer's art, but no help at all in selling the honey. I don't care a rap what the label says, provided it only induces the observer to buy the package and test its contents. After that—if it is my honey—he will come back for more of the good things behind that label, and it is just there that I want my label to have an individuality which is exactly what the made-by-the-mile lithographed does *not* possess.

What have I to say about packages? What is your market? The average city market wants a glass package, smooth clean jar, smooth non-leakable top, and in sundry sizes. One store will use nothing but pounds; another a smaller, and another a larger size, and still another a mixture of two or more sizes. You never can tell till you try them out. Size of package is governed by the customary purchasing price

of the community. In one town, pounds retail for 15 cents; in another, for 30 cents. One store sells only for even nickels, while the next sells wholly on odd cents, as nine, fourteen, eighteen, etc.; and they measure your price by what the packages retail for.

One town will take dark-amber honey and give the top price for it; another wants light amber, while the next wants water-white. One wants mild, almost insipid honey, while the next wants something pretty rank.

Oh, this selling to the retailer is such a simple art! And even that simplicity is simplified when these sundry preferences exist between stores of the same town, and each store wants a different brand, and the salesman becomes insanely happy when on top of all this the buyers want all candying honey exchanged and all broken combs replaced. Oh, joy!

Possibly one of the best ways to learn the art of suiting the retailers is to go to work for a few score of them, perhaps buy for some of them at a profit-producing price. And that reminds me—do you know how much "profit" has to be added to your goods before the consumer gets them? Here are some of the costs between producer and consumer, supposing the producer sells his crop in bulk. Freight, cartage, and jobbers' expenses, minimum fifteen per cent; packages and packing, about ten per cent; "cash store" retail expenses, fifteen to twenty per cent; while a credit store's "overhead" may run to thirty-five or fifty per cent. Suppose your honey goes to the consumer in a pound jar selling for twenty-five cents; deduct from that, say fifty per cent just for expenses, then deduct what you think are the profits of these middlemen, and see how much is left for you. Can you afford to produce honey at that price? It depends on how much you produce at how much per pound. Do you know? Have you even a remote idea? Better find out before you get into the honey business very deeply. When you find out the cost of production, go into the cost of your marketing. You may find that the "overhead" expenses are up there like Damocles' sword ready to cut off all your profits on the slightest incautious move. Knowledge is said to be power; but it is also at times mightily disconcerting to our plans and pipe dreams. However, it is just as well to acquire a goodly bit of it at the start. The good wife and kiddies are less likely to be hungry and disappointed by and by.

After you have learned all about what your local market wants, you will find it is so for only a little while; that it is constantly changing, and that, unless you are

awake and alert, some chap who is will crowd you out. The scramble for a living is just about as cold, heartless, and unfeeling in trade as it is among the animals. Sentiment, good fellowship, good will, kindly feelings, may be expressed, but orders are what the salesmen are after, and the chap who gets them is the one who counts.

When the competition gets keen, and prices drop and drop, what are you going to do? Hang on, drop prices and sell, or give up the business altogether? It depends on what you know of your business. If you are not thoroly informed, you are not in position to fight successfully for your living, and sooner or later you will go under. We have had all sorts of producing schemes and all sorts of appliances, and we have discussed these things until our voices are husky and our ink used up, but precious little have we heard of the cost of using said appliances or methods. We shall have to know pretty soon, for this honey business is getting down to brass tacks.

As consumption increases, prices will drop. Why? Oh! well, that is one of the economic laws which we have so far been unable to repeal. To explain it a bit—a lawyer would charge you for the explanation, but I won't, because I am already overburdened with the profits from the bees, and want you to be. To continue, when the demand for things increases, the production increases; more people enter the business, and very soon down go prices. Some fine day the dear public's fancy changes, demand falls off, and—well, only the strong and the astute weather the storm. And when you are put up against such conditions you will either holler for help or sit

down to live on the interest of your wealth. The strong and astute are those who have prepared themselves to meet the storms of competition, low prices, changing demands, etc., by piling up a reserve of capital, by learning all the arts of selling, by anticipating the consumers' demands—in a word, by being "forehanded." That term was given by our good old New England ancestors to the successful, thrifty, hardheaded ones among them. The homely virtue is as good today as then. Forehanded means more than the acquisition of worldly goods. It means the knowledge and thoughtfulness on which such thrift is based. I repeat, to get the knowledge of markets, of the kind of honey wanted, of the best packages, etc., go into the market, *buy* honey, taste it, study the packing, ask questions, follow the conventions, ask more questions, stop, look and listen, then move on and do it some more.

"They have eyes but they see not, and ears have they but they hear not." If you are both deaf and blind to what is about you, for your own sake and for the sake of the rest of us *hire a salesman*. Do you say that you cannot afford to? Then pool your issues with your fellow-craftsmen; go into a marketing association as some of the Colorado beemen have done, and as so many fruit and other specialists have done. To be sure, you will have to yield to the majority; but most of the time the majority is pretty nearly right. Co-operation is a sadly overworked word, but a very much underused fact. Be as willing to yield to others as to express your own views; *get together* and *pull together*. Perhaps you are doing very well going it alone; but in the long run you may do a lot better "running with the pack."

Providence, R. I.

THE NECESSITY FOR ADEQUATE GRADING

BY JOHN W. LOVE

The attitude expressed in the bromide, "We are beekeepers, not salesmen," is all very well for the man who keeps bees as a backyard hobby; but the honey-producer who depends on his colonies for a living cannot afford to neglect the principles of marketing farm produce. Some very important developments have taken place in this new science of selling, and more important advances are due in the near future.

The preparation of a package has long been recognized as a basis of success in business of any kind. It would be impossible for manufacturers to deal with distributors without having between them a clear

understanding on sizes, grades, and packages. Yet farmers have been slow to grasp the significance of this principle. They have continued to send to market apples of different sizes in baskets of varying capacity, strawberries in crates of odd dimensions, and comb honey of widely different grades in the same lot.

If the dealer is to quote a price he must know exactly what he is getting; and before transactions can be placed on a permanent basis of confidence he must know that what he receives will be strictly true to grade. It is impossible to make much progress until the buyer and seller discuss the com-

modity on the same terms. Standardization of packages and contents is also necessary before marketing information can be disseminated.

In this direction a beginning has been made in the adoption of grading rules, such as those of the National Beekeepers' Association; but outside of the successful co-operative associations very few honey-producers give adequate attention to this important matter. The situation has been the same in apiculture as in fruit or cotton growing—the producer has relied upon the buyers to make the classification by competitive bidding. It does not work out this way, however, as investigations by the Bureau of Markets have shown.

It is true that a product of high grade will sell itself, albeit with some loss if the sizes of packages are not uniform. The trouble lies with low grades, culls, and mixtures. These are ruinous to the whole market, whether they are cotton bales, grapes, or sections of honey.

The public is ready to pay good prices for the product which is uniform in quality, size, and package. Consumers are quick to appreciate a commodity of uniform high grade, and are willing to pay prices which will be remunerative to the producer. This has been demonstrated in the success with which standardized syrups, cereals, and canned vegetables have sold at prices three times those paid to the producer.

NEW HONEY STANDARDS COMING.

Since the net-weight law went into effect loud protests have gone up from beekeepers who object to the trouble it makes in stamping the weight on the sections. The new law makes for standardization, however, and so must be considered a step in advance. The only drawback is that standardization has not yet gone far enough. It does not yet include sizes of sections and grades of honey.

Perhaps further advances in this direction are premature, at least until some of the agitation against the present law quiets down; but more detailed standardization on the part of the Government is coming, and the sooner it comes the better for the retail honey market.

What will be the nature of the new legislation? Congress has established the standard apple-barrel which now has the same legal status as the bushel. At present, standardization of apple-boxes, berry-crates, and cups is under consideration. It is not unlikely that the Government will undertake to define sections for comb honey in the same law. Ample time will be given, of course, for the beekeepers to use up sections of odd size. The form or forms standardized would be those in most common use.

This standard would be enforced in the same way as the standard apple-barrel. Bees would still have the right to build comb in any other thing; but the producer could not sell the product at a price per section unless its dimensions conformed to the government rule. Congress has the right to enact such legislation under the weights and measures provision of the Constitution. It would be applied without regard to whether the business is interstate or not.

The Government can never be expected to accomplish as much for honey-producers in this direction as they can do for themselves thru co-operative effort. Such standardization as contemplated would not be as effective as the Colorado Honey-producers' Association enforces among its members, for example. But it would be something, at least, and would probably make possible more extended co-operative organization in the craft. This would mean larger profits for the individual producer.

Cleveland, O.

SELL DIRECT OR TO THE RETAILER

BY CHARLES H. CHESLEY

The small honey-producer can often dispose of his product thru the agency of some local grocer; or in case he has too much for one merchant to handle, two or more can be induced to handle the output. There is usually more money for the producer by selling to the retailer direct than in dealing with a commission house. Of course, when the output is fairly extensive it may be necessary to do business with the commission man.

The honey market is one that can be

developed in many communities. Thus one producer in a community where beekeeping is rather uncommon had a small circular printed, describing the uses and valuable qualities of honey. This was left on the counter of one of the main groceries. On the bottom of the circular was announced the fact that "our product is for sale by John Smith & Son." It was stated that this more than doubled the sale of honey in that village in a few weeks.

In selling honey in the home market (or

anywhere else), careful grading is necessary. The product must, in all cases, be exactly what it claims to be. This is even more important in the home market than when selling to a commission house, for future sales depend on satisfying the customers.

Endeavor to have the grocer make it a point to push the sale of your honey. In order to do this it will, of course, be necessary to allow him a liberal margin of profit. It is better to do this, in most cases, than to attempt to sell the product direct; and even then you will probably realize more than you would from the commission merchant in the city.

One man of the writer's acquaintance,

whose whole business is beekeeping, sells his honey almost entirely to consumers, having regular customers in three or four small cities. Of course he can do little marketing in the busiest seasons; but he sells a good deal at times when the bees need no attention. This man sometimes finds he has more than he can sell to the retail trade, and then he drives to a village two or three miles further away, and disposes of it to the retail merchants. In the towns where his regular customers live he does not attempt to do business with the retailers, as they naturally know him and feel somewhat prejudiced against him. Fortunately for him, he lives in a locality where thriving manufacturing villages and cities are scattered thickly.

East Barrington, N. H.

PUT YOURSELF IN THE CUSTOMER'S PLACE

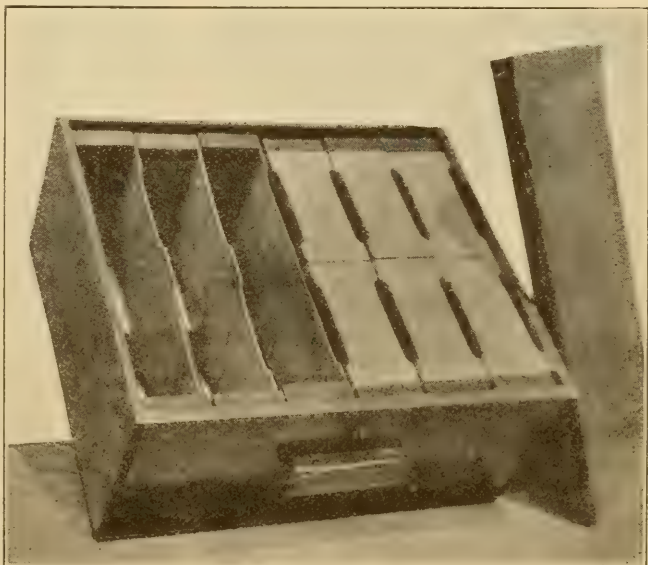
RUTH C. GIFFORD

We find that the easiest way to sell honey is to give the customers just what they want. Perhaps you think these kinds of customers are cranky. If they are, they are merely like everybody else. All persons are cranky if you know 'em. Besides, these customers generally use a lot of honey, and their trade is dependable.

As soon as the honey is off the hives, and cleaned, it is sorted, and the cases immediately packed for the customers who have likes and dislikes. Some prefer the pure white honey; others want the light and dark mixed. They claim it has a better flavor. Then there are some who don't think the light honey is fit to eat, and refuse to buy anything except the very dark.

The frequent request that puzzled me most was for sections that have no honey in the row of cells next to the wood. On inquiring I received a very interesting reply. In nearly all homes the honey is cut out of the wooden section before it goes on the table. Consequently the majority of the family never see how attractive the section looks with the cells neatly sealed close up to the wood. When honey is prepared for use from

these pretty sections, sealed cells have to be cut; so when it reaches the table the edges of the comb look smeary, and some honey is running over the plate. If the outside row of cells is empty the honey can be removed from the section so it will look very attractive when it reaches the table. There will not be a single drop of honey in sight until it is passed to the first hungry honey-eater. Now, when we have company and want it to look extra nice we always select a section which has no honey in the row of cells next to the wood, and the way people admire it amply repays.



Ruth C. Gifford's carrying-case from which she retails comb honey.

Sending out sections containing pollen is one thing against which we guard most carefully. The sections are always sorted in front of a window, where even a small amount of pollen will show dark thru the section. Nowadays people are not educated (?) to pollen, and the first bite into it by an innocent person is a sure guarantee of a lost customer.

A large part of the honey is sold in cases holding a dozen sections. We have never tried larger cases, because it would be useless. Some people even say these cases are too large.

Of course quite a number of people don't buy even a twelve-section case; so for supplying them we use twelve-section retail cases. In them are six section-holders, each containing two sections instead of four as in the supers. They also have division-boards. When one section is left alone in this length of holder it will not jolt around enough to damage it. The ends of the section-holders rest on cleats, so any leaking honey will go into the bottom of the case. Before the boards are nailed on the bottom, a piece of white table oilcloth is fastened on it, and then the boards on top of that.

In the lid, the boards are fastened together with strips of tin. The lid is perfectly flat on top, and is covered with tin or heavy building-paper. It has a cleat around the edge on the under side. After this case is completed it is stained inside and out a dark brown, and given two coats of water-proof varnish. When it is soiled it is wiped with a damp cloth, and even the shiny white oilcloth in the bottom of the box is soon as clean as ever. We have used this kind of case for several years, and it has given perfect satisfaction. It is needless to say the sections themselves are scrupulously clean. In every way we do all in our power to make the honey attractive.

If you have honey to sell, try to put yourself in the consumer's place, and imagine just how it would appeal most to you. Then fix it that way. For instance, if you value your trade *don't* wrap cases or sections in newspaper. Leave them unwrapped first. However, they are much more attractive in regular wrapping-paper.

I hear some one ask, "Does all this pay?" It most assuredly does. We have always had more demand than honey, and at good prices too.

North East, Md.

I AM NOT A SALESMAN

BY G. C. GREINER

From observation I know that beekeepers as a rule greatly neglect the most vital part of our pursuit. The financial success of all our beekeeping efforts hinges on the sale of the product. If we do not put forth the necessary efforts to increase our sales, all the increase of our crops will benefit us very little. In past years I have not done my best in this direction; and today I am not pushing things as I might. The only excuse I have for this neglect is that I am not a natural-born salesman. It goes against my nature. With the long experience of producing and selling honey I can do fairly well after the ice is once broken; but from choice I would rather stay in my honey-house or among my bees than start out into a section where I am not already acquainted.

Early this fall I received a postal card from one of my old customers who had moved from his former home to a new section of the city. The card requested me to deliver his usual winter supply of honey on my next market trip or whenever I could make it convenient to call. When I stopped at their house the lady of the house came to my wagon and selected quite a quantity of my goods; and while we were chatting

the lady of the next residence joined us with the intention of examining the contents of my wagon. She, too, made quite a purchase. Before she left the wagon a little girl stepped up to me and said, "Mr. Greiner, mamma wants you to stop at our house (the third in the row); she wants some honey too." This shows that people will buy honey if it is offered to them in attractive form, and made convenient for them to procure it, when otherwise they would never have thought of honey. If I had stopped at every house the length of the street, undoubtedly the majority of the inhabitants could have been induced to make a purchase. But I had been at the market, and was nearly sold out.

A neat attractive label is in many instances the means of increasing sales. It should not be too large to hide the contents of a glass package, but sufficiently conspicuous to attract the notice of the buyer. At our last summer's gathering of beekeepers I had a little discussion with one of our prominent members on this subject. He claimed it did not pay to go to the trouble and expense of using labels. He said he had his name pressed on his bottles for one

thing, and too many of the labels came off before the honey got to the consumer any way, so he decided not to use them any more. I cannot agree with our friend. It is true that once in a while a patch of labels does not seem to stick as well as at other times. When we are liquefying in cans a few may come off; but they are easily replaced, and the businesslike appearance of our goods compensates for the little trouble. A neat tasty label is certainly a great improvement, and helps sell our honey for various reasons. Its object is at least threefold. First, the guarantee being on the label, it insures the buyer unquestionable purity of the article. Second, the name convinces the purchaser that we are the actual producers—a conviction which again produces confidence in our goods; and, third, as I said before, the neat appearance of our ware attracts the attention of the passing crowd.

Time and again I have had people take up a can of honey, and, after examining the label, say, "That is the honey I want." Others ask, "Are you the Mr. Greiner yourself who produces this honey?"

When answering in the affirmative, a sale invariably follows. It seems to give a certain satisfaction to buy direct from the producer. People have less confidence in the genuineness of the article after it has passed thru three or four different hands.

That other branches of industry consider attractive labels of great importance can be seen every day when we step into our groceries and drugstores. All the shelves are lavishly decorated with goods of all descriptions nicely labeled. Why should beekeepers neglect their own interest and fail to improve the appearance of their goods when it adds so much with comparatively so little expense?

Another feature which the majority of beekeepers greatly neglect, and which in

many instances would increase the sale of their honey, is an attractive display at fairs, carnivals, and other public exhibitions. Until very recently I have been one of the "doubling Thomases" myself. I was laboring under the wrong impression that it does not pay. My first attempts along this line, in which I was interested many years ago, did not show any adequate results for the time and trouble expended. Besides, being otherwise engaged, I could not spare the time to attend properly to an effort of this kind. But since I have moved to my present home, conditions have been more favorable in regard to this matter. Having severed myself from nearly all business connections except beekeeping I could have managed to set aside the necessary time for this purpose; and my locality, being one of the best in the country in regard to the production of an extra-fine quality of honey, the effort of making a fairly passable display at fairs would not have inconvenienced me very much. And why did I neglect it? Simply shortsightedness. The old impression, "it does not pay," kept me from availing myself of the opportunity.

Recently it happened that the progress of our little burg, the building-up of the place with the rapidly increasing number of inhabitants, induced the men at the helm to propose and start a so-called "harvest festival" in the form of a general agricultural fair. Being a tax-payer and therefore more or less interested in public doings, I decided to contribute my mite toward the success of the undertaking by way of a little honey exhibit. I did not expect any direct financial gain out of the affair, and the result was, therefore, all the more gratifying when on my first market-trip afterward a lady accosted me something in this way: "If you are the exhibitor of that honey I saw at the fair, and you have any more, I should like to get a crate just like it."

La Salle, N. Y.

WHAT I HAVE LEARNED IN SELLING MY OWN CROP

BY WALTER GARABRANT

I am situated where most of the honey customers are well-to-do, and many of them are wealthy. When I started I was located on a by-road; but for the last ten years I have been on a main macadam road. Since the advent of so many autos there are a few more transient customers who sometimes come again. I have always kept a small sign "Honey for Sale" in plain view of passers by, and the apiary may be seen from the road.

Salesmanship is almost a profession at the present time. Doubtless it needs to be if one undertakes to fake the public for a swindle. But almost all producers of small quantities of honey could be their own salesmen to advantage if they would give it some consideration. On the average, perhaps, they would be about as successful salesmen as apiarists if they would put forth reasonable effort along this line.

My honey is sold both at retail and

wholesale. When the crop is small it nearly all goes at retail. When larger, only a fourth to a third goes at retail. We have always peddled most of our farm products, and honey sales have been made mainly in connection with the sales of other produce. When we sell at wholesale it is usually direct to the retail merchant, not to a middleman.

It has always been one of our principles to sell to the nearest buyer who will pay the market price. This is sometimes our nearest neighbor. Thus we save time, transportation, and risk of lost payment, since we know the reliable buyers. This also relieves the larger markets, and gives better distribution. We have always tried to give a buyer what he wants or needs, sometimes refusing to sell when we knew it would not suit, or that it would give dissatisfaction later, and probably result in the loss of a customer. I cannot recall losing any of our customers because of dissatisfaction.

I am known as a "dear man," not as a "cut rate." Sales at retail are made at the best or average retail price for the quality; at wholesale at the best market price. Prices are usually set by the local markets, but sometimes by the larger city quotations in the papers. In this way we are on good terms with the stores and business men in town, and we can sell as we like. Because of lack of time I have never made a regular business of peddling honey in the large town where the large part of my wholesale sales are made. I believe a good thoro peddling of honey once a year at least would increase the honey sales as a whole for the stores. I have started a good many customers by an occasional sale.

I have a few regular customers in town who take honey when supplied with other produce. I have never had trouble in wholesaling my honey, both comb and extracted, at the stores, and usually at prices higher than the New York quotations. I could sell more if I tried. To start a new wholesale customer who is in doubt, or does not want to buy, if reliable I leave honey for sale on trial. I have never had any returned. I always sell for cash at the stores except in a few cases where the honey is delivered by others.

I have never advertised honey. Why should I when I cannot supply the present demand? However, I have always been ready to talk about bees and honey, and give any interesting facts about them. This may not have increased sales, but it has been at least the means of getting most of the storekeepers to take better care of their honey, and keep it on display.

My oldest record of sales is dated 1898, when the crop was about 1000 pounds. Since then the crop has varied from 400 to 2700 pounds. I know the average price per pound of that first crop was much less than of late years. I still have many of the same customers, both wholesale and retail. Some of them come back voluntarily, or send orders. A good many I keep after, by a notice of the new crop, or inquiry of some kind as to what they want. Many I call upon when the new crop is ready. I get advance orders from the storekeepers when I can; but most of them are regular customers, and their demand is about regular. The rest of the orders are taken by chance.

I have one retail route that I go over once in the early fall, and twice if time permits. This trip runs from 100 to 200 lbs. for the day's work. On this trip I am often able to dispose of the odd sections that do not case up well with the main lot. At first the customers on this trip took mainly comb honey; but the last season and the one before they took nearly all extracted, in jars. The demand changes—due, principally, to the more attractive appearance of the jars and the more convenient form for using a little and saving the rest for later use.

I have always had some good customers for such poorly filled and poorly capped sections that are too heavy to use profitably as baits. These are sold by weight at the wholesale price. Price tells here. It is seldom necessary to change customers for this grade often, and but little trouble to find a new one. In this way hurting the store trade with second-grade goods is avoided.

I have nearly always sold my good section honey by the box, always at retail. I consider it less apt to make the public critical on this point. However, I always grade carefully, and vary the price to fit the grade, especially to the wholesale trade. Thus a lighter section may sell, in a short season, for the same price as a better weight when the sections run heavy.

Enough dark honey is bottled to supply the demand in that form. The rest is sold in 2 x 4 quart tin cans. Because dark honey is cheaper, it always finds some sale, mostly to neighbors. A few prefer the flavor of the dark honey. I have also a considerable demand for two-quart cans of white honey. Many of these are sent by parcel post.

Sometimes it hardly pays to retail from the standpoint of profit alone; but the honey must be sold. Retailing relieves the wholesale trade, and usually stimulates and creates a demand for honey.

My principal honey-flow is from the

clovers—white, alsike, red, second bloom, sweet clover, of late years, and several seasons we have secured some from alfalfa. The season ends with the sumac, which is often the heaviest part of the flow. I have always made it a practice to get my comb honey off with as little travel-stain as possible. The extracted I want good and ripe, but not too heavy and sticky. It is stored in a good hot room until after the fall market. I have had the thermometer go to 110° F., generally 70 to 90. What I carry for winter is put in a warm dry room in the house. Doubtless the quality and flavor of the honey have much to do with repeat orders, tho tastes and opinion of quality differ very much.

The same label, and also a distinctive one, I find, is also a help in holding trade for the stores. Every section is scraped thoroly

clean inside and outside and usually stamped on the top as a guide to keep right side up. Cartons are used on all retail trade, but not on all sold at wholesale.

To summarize:

Sell to the nearest obtainable customer or market.

Never be "grumpy" if a buyer says no.

Get the best market price—don't cut.

Don't retail at wholesale prices. It's a waste of time and labor.

Give customers what they want or what you believe will suit them. Put the honey in the best marketable shape and appearance, but grade honestly. If the demand is short or lacking, create it in some way. Talk about honey and bees to any one who may show the slightest interest.

Be careful to keep up the quality of your honey.

Chester, N. J.

MARKETING HONEY LOCALLY

BY JOSEPH GRAY

Variety is the spice of life. In years past I have paid considerable attention to an attractive and varied display of honey; but the purpose of this article is confined to supplying the local needs. When I see both comb and extracted honey brought 100 miles to be sold in this valley, while we who live here market at wholesale 500 miles or more distant, I think it is time to sit up and cater to the home trade. The reasons for this neglect are that no one will trouble with sections; and then, second, it is cheaper, if you own 1000 colonies, to buy in bulk by the earload, and sell in bulk. When I came into possession of an apiary I figured that, as I had to proceed on a smaller scale, the difference between 5 cts. wholesale and 7½ cts. to local buyers for extracted was worth the extra labor involved, also the production of a few sections in extracting-supers suitable for the local trade.

I present your readers with my label, and what it stands for as follows:

I have spent considerable time getting up labels. Let us pick this label to pieces:

1. Locality is not too prominent, but sufficiently so to attract attention. This is an alfalfa region, and the day is here when an American will purchase an article for what it is, and reject it if not so labeled. I try to build up an honest trade, and therefore I give prominence to the words alfalfa honey.

2. Ownership is not too prominent, and yet prominent enough to back up the guarantee.

3. The guarantee of purity and quality. I am at all times open to inspection to show that care and cleanliness are exercised to produce a pure article of standard quality. It is not my purpose to pit alfalfa honey against sage or orange, but to create and hold a local market for alfalfa honey.

IMPERIAL VALLEY

ALFALFA HONEY

FROM THE APIARY OF

JOSEPH GRAY

HEBER

Purity and Quality Guaranteed

by the Producer

NET WEIGHT 10 LBS.

NOTE: Pure Honey will Granulate or Candy. Candied Honey is an agreeable change from Liquid Honey. To restore Honey to its liquid condition, place the can in a pan of water heated to scalding (150 degrees), and allow it to remain until the Honey is liquid.

4. The net weight is a simple statement to comply with a wise law and ensure the customer's confidence.

5. The note is to enlighten a customer. Is there still ignorance as regards honey?

A word about cans. I have two kinds. One I like and one I do not. In judging displays of honey, 20 points out of 100 were allowed for the get-up of a display from the business standpoint, and often it is the little details that add to the effect as a whole. I prefer a can with a large friction top and an ear soldered for the bail under the top seam. A non-rusting soldering-flux should be used. I do not like a can with a small lid, nor do I like to see considerable rusted surface about the ear from the use of acid in soldering. It gives the can a second-hand appearance.

Salesmanship is an art. Never let an

opportunity go by to place a simple statement to educate a customer. Above all, don't make their ignorance a laughingstock to others.

The art of selling to the grocer or to consumers is a good deal one of locality. If you have time to spare, the latter plan may pay; or if you are running a milk-wagon it may pay.

The producer is not the only one. The man who distributes and the man who sells over the counter need their share. Local sales from home are limited. Let us be charitable to the man who markets for us.

Heber, Cal.

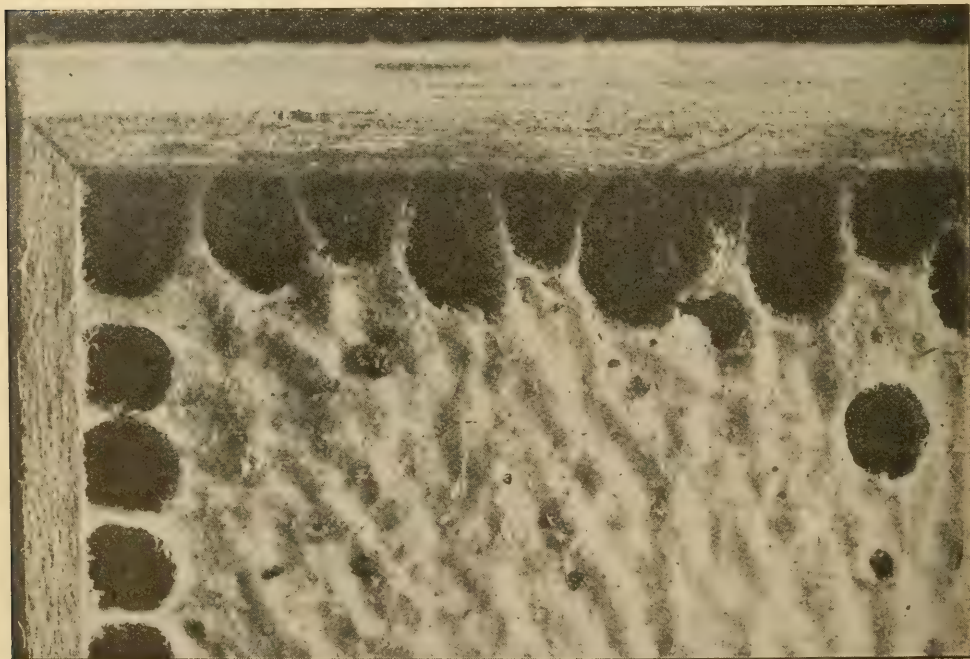
AS GLIMPSED THRU THE CAMERA

Good Appearance after all, is one of the Best Selling Points

BY H. H. ROOT

The discussion on scraping or sandpapering sections between Dr. C. C. Miller and our Mr. J. E. Gayer, given on pages 655 and 656 of our August 15th issue for last year was very interesting to me, for the question of removing propolis from comb honey is a subject to which I have given considerable thought. I have tested a number of different power devices for doing the

work, including different forms of sand-wheels and sand-belts, but have always decided that a plain flat-faced pulley covered with sandpaper, with means for renewing the paper quickly, furnishes the simplest and best method of cleaning sections. While it might be strenuous exercise, I believe such a cleaner could be run by foot power. I tested A. E. Shore's cleaning-device, pie-



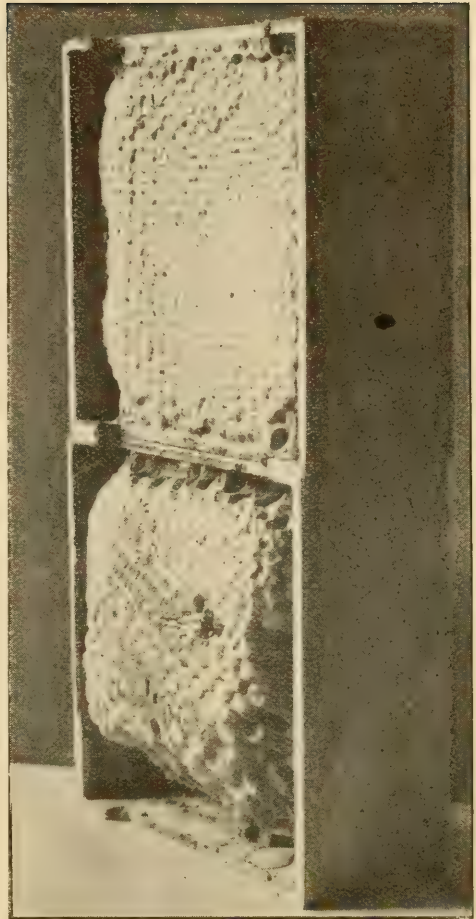
A corner of a section of honey enlarged to show the dust of wood and propolis scattered over the surface of the cappings. This trouble is caused by carelessness in cleaning the propolis from the wood.

tured on page 591 of the July 15th issue, and Mr. Gayer tested it also, but neither of us liked it as well as the simple sandpaper-covered pulley. I have also tried revolving wire brushes; but the wire soon gets dull or fills up with propolis, and has to be renewed, and the renewal of a wire brush amounts to more than the renewal of the sandpaper on the surface of the pulley.

But in this article I did not start out to discuss all the different methods of cleaning sections. I merely wanted to picture a result very common—more common than one would believe—of improper sanding of sections. (I am not sure that the trouble is always due to sanding. Careless scraping might produce the same result.) I refer to the cleaning of sections, especially plain sections, in such a way that the dust of the wood and propolis is scattered around over the surface of the comb, making the cappings look “fuzzy,” and the honey itself, in the occasional open cell, very much speckled. A magnifying-glass shows clearly the minute particles of wood and propolis, sometimes not so very minute either.

Last summer Mr. Gayer showed me case after case of honey, almost any section of which, if one examined it closely, showed this same appearance. I picked out one which was bad, tho not as bad as some others that I have seen since, and made a photograph of it. Some may think this illustration exaggerates the appearance of the honey. As a matter of fact, while I tried to exaggerate it by enlarging, and by getting the light just right to show the dust to the best advantage, the honey itself looked far worse than this picture.

If a plain section is laid down flat on sandpaper, and moved back and forth in order to clean the edges of the section, the surface of the honey is almost sure to get pretty well covered with this dust. In a warm dry room the frictional electricity generated no doubt helps the dust to cling to the comb. To be sure, if every particle of dust on a section of honey could be carefully removed and put together in a little heap in a spoon it would not make a pile large enough to be noticed perhaps, even if it were all swallowed at once; and yet that dust scattered over the cappings makes the honey look bad, if one takes the trouble to look at it very closely, and that is the principal reason why the practice should be avoided. With beeway sections the dust feature is never quite as bad. At the same time (and let me whisper this so Dr. Miller will not hear it) I had the opportunity last fall of looking at some of Dr. Miller's own comb honey, and I found some dusty sec-



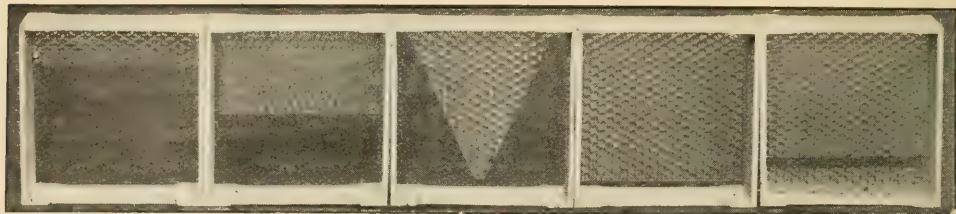
It is never good practice to ship bulged comb honey; and putting bulged honey in with good honey in the same shipping-case is inexcusable.

tions! I tried desperately hard to find a section bad enough to photograph, but could not, so I shall have to assume that Dr. Miller knows what he is talking about, for beeway sections at least.

Summing up the whole matter, it seems to me that the practice of laying plain sections down on sandpaper in order to clean the edges should be condemned. A better way is to use some sort of scraper for the edges of plain sections, and no doubt even of beeway sections, unless the operator is careful. Of course, the edge of the beeway, if badly propolized, has to be scraped any way if one wants his comb honey to look presentable.

FANCY AND CULL HONEY IN THE SAME SHIPPING-CASE.

The second illustration shows a couple of sections taken from a shipment of very



Five different styles of foundation starters.

fine comb honey—at least most of it was fine. The only bad thing about it was that every now and then a badly bulged or one-sided section was slipped in along with the good honey. Both of these sections were taken from the same shipping-case. Wherever this is done the surface of the comb of the bulged section is nearly always bruised as well as the section next to it. Bulged comb honey ought to be considered “unshippable;” at any rate, it should never be shipped with good honey. Aside from the bad practice of injudicious grading, shipping honey like this with good honey always makes trouble. The one mistake spoils two sections.

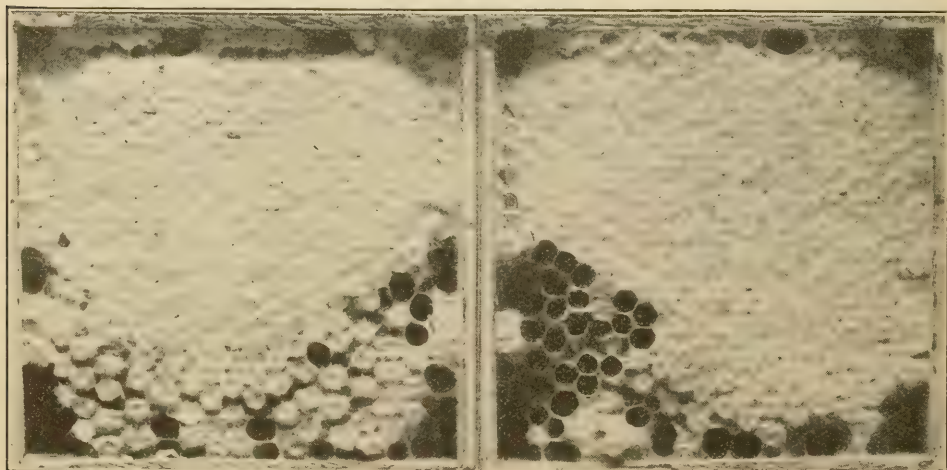
If shipping bulged comb honey were a rare practice, calling attention to the matter in this way would be foolish; but instead of being rare it is, unfortunately, very common. In most cases I suppose it is not intentional; but, like all other unintentional mistakes, bad results follow just the same.

WHAT IS THE BEST-SHAPED STARTER?

The third illustration shows five sections fitted with foundation—from starter to full sheets—and also a top and bottom starter. Every form of starter there represented has

its own advocate; but personally I feel that the last plan, that is, the double starter, as originated and recommended by Dr. Miller, has the most points in its favor. There is no question but that more producers are using double starters every year. It takes more time to put in the extra starters, it is true; but it is time well spent. Many do not use the right sizes. In giving the right sizes I can do no better than to take Dr. Miller's words from “Fifty Years Among the Bees.” Speaking of super foundation, $3\frac{7}{8} \times 15\frac{1}{2}$, he says, “This size is just right to make four top starters $3\frac{1}{4}$ inches deep and four bottom starters $\frac{5}{8}$ inch deep. Occasionally a bottom starter of this depth makes trouble by lopping over, but not often, and a shallower starter is more likely to be gnawed down by the bees. Moreover, I think the deeper the bottom starter the more properly the two starters are fastened together.

With two starters of this size, and a $4\frac{1}{4}$ section, there should be a space of $\frac{1}{8}$ inch between the two if it were not that the space is made larger by the melting-away of the edges of the starters when they are put in the section.



The result of leaving old sealed honey in bait sections. The finished product is patchy and discolored. The photograph does not tell the whole story, for the old honey looked its age and more too. Sealed honey in bait combs should be uncapped, and the comb shaved down quite thin.

NEW DESIGN NEEDED FOR COMB-HONEY CARRIERS

BY F. GREINER

For some years I have been shipping my comb honey without the use of carriers for the shipping-cases for the reason that I have been enabled to load whatever the number of cases I wanted to ship in thru cars with fruit being shipped from this point in car lots. I have quite a quantity of the carriers on hand, but I make use of them only on rare cases.

The supply dealers are not aware, it seems, that a different ruling is in force now as to these carriers. The fact is that the railroad companies in the East will not accept such carriers as are now listed in the new price lists of 1916. The old design was all right up to the fall of 1915; but at this time the carrier must be enclosed all around—in other words, it must be a tight box. I was put to the trouble of unpacking a small shipment last fall and remodeling the carriers to meet the requirements. Another beekeeper here had to unpack his whole crop and fix the carriers over, making him a very unpleasant and laborious job, to say nothing of the extra amount of lumber that had to be used.

Our transit companies get some funny ideas into their heads sometimes—for instance, the ruling now in force on egg-crates. These must be just so—regular style, nothing coddled up will be accepted. I attempted to ship a crate a few days ago which had been remodeled from a substantial lemon-box. The express office called me up and told me that I must come back and repack the eggs into a regular style of crate. Manufacturers of carriers will do well to see to it that their carriers conform to the rulings of the railroad companies.

HARMONIOUS COLORS FOR LABELS.

For honey-labels of any size, particularly

for tin packages and pails, a white and yellow background with black printing harmonize well. Let the white paper be covered all over with light-yellow bees—no sharp dark lines in the bee—white lines drawn all thru the bees, to make the bees not inconspicuous, but to appear, from a little way off, as a very light yellow with the white paper. Upon this paper should be printed in very large conspicuous type the word "Honey" so when a pail or can stands on the grocer's shelf it may be easily read from a distance. The less other reading on the label, the better; but the name and address of the producer as well as the number of pounds or ounces should be given. Such labels might be made of any size, from very small, suitable for section boxes or small tumblers, up to 60-lb. cans, etc. They should not be very expensive.

A straw skep could also be used in the manner above mentioned for a background in lieu of the bee. For honey labels nothing could be more appropriate.

SENDING GRANULATED HONEY BY PARCEL POST.

There is nothing to hinder the shipping of granulated honey in tin—possibly in paper also—by parcel post. I have not dared to send liquid honey in this manner, altho put up in friction-top tin pails.

We must guard in every possible manner against the possible soiling of other mail matter with honey. A package of comb honey was retained in our postoffice here because of the leakage. It is not practical to ship comb honey by parcel post except when put up in tin and tightly sealed. Comb honey will always be badly broken in transit when shipped by parcel post.

Naples, N. Y.

MARKETING HONEY ON RUBBER TIRES

BY LEWIS L. WINSHIP

During the season of 1915 I produced about 500 pounds of honey in all—a little more than 400 pounds of which was extracted. About half the extracted, and all the comb, was sold at home.

As we own an automobile, and were selling other things from house to house, I hit upon the idea of carrying a few dozen jars of honey. This plan did not occur to me until the latter part of August; and from that time on, ten or twelve dozen jars of honey were a regular part of our load. I

sold these jelly-jars of honey, holding an average of eight ounces, for 90 cents to \$1.25 a dozen. They moved readily; and at nearly every store where they had none on hand I made a sale. These first sales were necessarily small—only a dozen or two in a place. I was counting on only the one sale; and wherever I sold any I took the name of the firm for future reference.

My own honey was soon sold, and I saw that I would have to buy outside honey if my side line was continued. I ordered 120

pounds for a trial, and soon saw that an order of that size was only a drop in the bucket. I forthwith ordered four cases more, and about a week later we had a breakdown on the road which wound up my wholesale honey sales for 1915.

From this method of selling honey I learned that:

A neat label attracts attention.

Bright tin caps are preferable to old rusty ones.

Price cuts a small figure if the honey is irresistible in appearance and taste.

Dark honey can be bottled and sold, if agreeable in taste.

A majority of retailers are ignorant regarding honey.

In regard to the latter I found that many up-to-date storekeepers thought extracted honey was spoiled when candied. Many of them said they would try a dozen jars of honey if I would guarantee it not to candy.

Against this condition I was obdurate, and explained that all extracted honey would candy in time. When I told them that this candying was a good test of its purity, I suspect a great many doubted my sanity. If not, they certainly looked as tho they did. I also explained how easy it is to reliquefy this candied honey; and probably by telling this fact I killed some sales, for many would take no more when they found they could liquefy what they had.

I have sold considerable honey around home in one-gallon tin cans; and I find that the only objection to this is the spoiling of the appearance of an otherwise beautiful product.

I have peddled some honey, but find that ten cents is all one can ask for an eight-ounce jar. For nearly all I have sold wholesale I have received \$1.25 a dozen. According to this I am losing five cents a dozen by peddling it. This certainly does not make

me feel like peddling honey when I can get \$1.25 a dozen wholesale.

From now on I think that I shall confine my efforts to selling from an automobile. By doing this I can sell ten or twelve dozen jars a day; while by peddling, three dozen is quite a day's work. Of course, after one gets his home market educated to use only his own honey he may be able to sell in larger quantities. At present the high prices of everything are tending to make people buy all their commodities in smaller quantities. Years ago, when people bought their winter's supply of potatoes and other things in one lot they were cheaper. Now they buy a peck of potatoes at a time, and pay from two to three times what they would by purchasing in bushel lots. The same thing applies to honey, and few people buy a winter's supply at once. The reason for this is obvious; few people have the ready money to lay in a winter's stock of anything. I had only one customer last season who purchased more than a gallon can. He purchased eighteen pounds, and no doubt thought he was buying a supply for life.

If all consumers would use as much honey as the beekeepers themselves, marketing honey would be simple. Last summer, when I took off honey I reserved 55 pounds of extracted for our own use, and in a short time little was left. We have a family of nine honey-consumers, and very little in the way of honey escapes.

My average profit per dozen was 50 cents. Possibly this profit will vary slightly with different localities on account of different prices per pound for honey. Perhaps some beekeepers may feel that it is worth the fifty cents per dozen to bottle and haul the honey around the country. If breakage were bad it probably would take all the profit, but I have yet to break the first jar.

Springville, N. Y.

SELLING A CROP BY SAMPLE; HOME TRADE VS. WHOLESALE

BY GEORGE DODDS

We started the season of 1915 with 45 colonies (35 fair to good ones, and 10 weak ones). The 35 stronger colonies we ran for honey, and the weaker ones for increase. About 20 colonies were run for extracted honey, and 15 for comb. The white crop amounted to 1850 lbs. extracted honey, and 1000 sections. The buckwheat flow was a total failure, and I had to feed for winter.

As this was the first time I ever produced any extracted honey I had to do some figuring to get rid of it at any price at all, as I had no call for this kind of honey. First,

I ran a small advertisement in our home paper to let people know I had extracted honey. About the last week in August I inserted the following:

A TON OF HONEY FOR SALE.

Bring a container on or before Sept. 5 and get your winter's supply of white extracted honey direct from the tank at 10 cts. per lb. A valuable honey-recipe book given with every order. After that date old prices will prevail—5-lb. pail, 60 cts.; 10-lb. pail, \$1.10; also comb honey by the section or family size case (15 sections).

GEO. DODDS.

During the ten days previous to Septem-

ber 5 I sold about \$75 worth of extracted and comb honey, the neighbors bringing all kinds of containers, but mostly one and two quart fruit-jars and gallon maple-syrup cans.

In about two weeks the following was inserted:

READ

Prov. 24:13, and heed the divine command.
GEO. DODDS.

This one furnished plenty of comment, as we heard from it a great many times. Every one had to look it up at once upon seeing it.

As I am not able to get out among the people to sell honey I had to think of some other means, as the advertising was not bringing many sales; even the wording was changed often. I sent samples to many places, but none wanted extracted honey at even a reasonable price. The best offer was 6½ cts., delivered in Cincinnati. This would mean about 5 cts. clear above containers and freight. I thought that good white honey ought to be worth more than this, so I ordered several gross of No. 40 bottles and corks and had the following label printed.

I AM A SAMPLE OF

DODD'S EXTRACTED CLOVER HONEY.

Taste and note my delicious flavor. I am put up in 5-lb. and 10-lb. pails at 60 cts. and \$1.00 respectively. Phone 112-2 or drop a card to Dodd's Apiary, Cambridge, N. Y., and your order will receive prompt attention.

I next filled a good supply with honey and handed them out to any one interested and to many who were not, and from the latter I secured many of my best customers.

This plan began to move the honey quite rapidly, as I would always have some of the

samples with me; and if some one would happen to be going to the city I would give them several to hand out, explaining how we would mail the pails crated, and what the postage would be. The result was that quite a number were sent to neighboring cities; and several, thru friends, were sent to New York. Many times one sample sold several pails. The beauty of it was, the sample and label did all the business, no explanation being needed.

Today, January 12, I have but four five-pound pails left. This means that 1700 lbs. was sold at home, or mailed, at between 10 and 11 cts. above the price of the container. The remainder was shipped away at 9 cts. in 5-gallon cans.

Now for the gain over selling at wholesale at 5 cts. net per lb: 1700 lbs. at 5 cts. \$85. The 1700 lbs. at home brought \$175; \$175 less \$25 for advertising, bottles, corks, labels, and honey (for filling the same) left \$150 for the honey instead of \$85—a gain of \$65 in money, not counting my work, and I have about two gross of the bottles left for another year. There is one thing that will offset my work, and that is worth more than \$65 too. That is, the customers I have for future years, as many of them are people who seldom if ever bought comb honey, and have now had from one to five 10-lb. pails. One family has had fifteen 10-lb. pails besides some comb honey. It will not be as hard for me to sell double the amount another year, as last year was my first year in producing extracted honey.

Many will probably say that my price was too low for honey to the consumer, and no doubt it was; but considering the market I think it was the proper time to work up a trade at home, even if it has to be done at somewhat of a sacrifice.

Cambridge, N. Y.

SELLING EXTRACTED HONEY BY PARCEL POST

BY J. B. MASON

With a great deal of interest I have read the various articles on this subject that have appeared in the different bee journals. I spent good money in finding out what price would be attractive. Of course, there is a difference in different localities. I also spent some money in finding the size package that takes the best, and proved to my own satisfaction that it is not the smallest package, and yet the small packages are kept on sale in all cities and towns. The impression is that the honey in them is "store honey."

After trying the small packages I decided

to give the quart screw-cap cans a trial. In a few papers I advertised in the classified columns, and got returns enough to set me to studying. I finally had the following ten-line electrotpe made and used it in a few papers.

EAT MAINE HONEY.

3 lbs. Clover Honey by Parcel Post anywhere within 600 miles, 60 cents.

J. B. MASON,
Mechanic Falls, Me.

On the left was a picture of a bee and on the right a can of honey. It took like

wild fire, for orders came with a rush. There were also a large number of repeat orders from people who said that the honey was the best they ever tasted.

In the last two months I have received over one hundred orders from one religious paper, having but a small circulation. I attribute this success to the fact that the advertisement showed at a glance just what would be sent—the two-quart screw-cap can. This advertisement has not only sold honey in these packages, but in ten-pound pails and five-gallon cans. It has also sold comb honey.

A plan like this does not end in one season. The people are educated to eat honey, and I am sure that there are many families to whom I have sent honey in this way that have not been in the habit of using honey heretofore.

I am writing this in the hope that the beekeeper who has produced a few thousand pounds of table honey may have a way in which he can get the most out of his crop, and at the same time develop the home market.

Mechanic Falls, Me.

MOVING A COLONY TO PREVENT SWARMING

BY J. D. HULL

We have been producing comb honey only for the last four or five years. Last season we had eight out-apiaries besides the home yard, the furthest being sixteen miles from home, and the nearest about two miles. We have three Metz cars that we use for traveling, hauling supers, etc. We have one car fixed into a light truck.

We try to get around to each yard every five or six days during the swarming season, and look into every colony that is strong enough for swarming. We do this by tipping the hive up so we can look for queen-cells in the bottom of the hive. If any such cells are started, nine times out of ten we find them on the bottom of the combs.

We used to follow the shaken-swarm plan, but have discarded it of late years, as it took too much time and work. For the last three or four years we have been practicing moving to stop swarming. When we find a colony that has the swarming fever we move it to a new stand and put one in its place that has not got the swarming fever, leaving all of the supers from the colony that was getting ready to swarm on the one we put in its place. If we can we let two or more field forces enter the one colony that has not got the swarming fever.

We always put all of the supers on this last colony with usually an extra empty one or two on top. When the first super is one-half to two-thirds full, the empty one is put under it, and an empty one is always kept on top.

Last season was a fair one. We got about two cases to the colony, spring count, with an increase of about 200 colonies. We put 500 in winter quarters last fall. Practically all of the work thru the honey-flow and swarming season was done by myself, as my brother, who is in partnership with me, has charge of the farm where we live.

This way of treating colonies for swarming will usually stop them for about one week. If I find the bees are getting ready to swarm, on our next visit they are given the same treatment again. This way takes much less time than any way we have found yet. In this way I work two, and frequently three yards a day.

Honesdale, Pa.

THE DEATH SONG OF THE WORKER BEE.

BY GRACE ALLEN

They will say I have died, but I know

I have lived! Tho life fled

While I claimed it and loved it so,

I shall love it until I am dead.

I have crowded it full of delight,

Of labor and zest and the flight

Of dream-driven wings in the sun;

For lives that are yet to be

In the days that I never shall see,

I have thrilled to my work—and won.

In the odorous heart of the hive

What days I have known!

The still-looking larvæ so live—

I nursed them until they were grown;

Or, hanging so hushed by the wall,

I builded it waxen and tall;

Then out thru the maze of the light—

For you, all you coming ones, you!

Went plunging and veering so true

To the flowers out of sight.

Swift workers, who hum as you pass,

I have crawled off to die;

Here, out of your way, in the grass,

With wings feebly fluttered, I lie.

All ragged these wings now and worn,

But what dreams-coming-true they have borne

Home—thru the sun!

Ah, Death! tho you silence my song,

I shall live—I shall live ages long

Thru the deeds I have done!

Heads of Grain From Different Fields



THE BACKLOT BUZZER

Beats all, the way the bees are working this summer. Mother says she don't know what to do, for the artist hasn't left enough space in this picture for more than two more supers.

Bees an Aid to Honey Sales.

A public demonstration in front of a grocery, showing a case of bees, with an interesting continuous talker on the life of the bee, will always draw a crowd of interested listeners who will take the wonderful statements of the beeman and tell these tales to their friends, that they may come, see, and hear.

The queen will always be found interesting, and the people will want to see her. The wonders of nature interest people when they can get the knowledge in an easy way. Some will go to the books to verify the statements. Should the sample of honey please, they come for more and for a larger quantity. Then they give some to their friends, and tell of the wonderful find.

The talker explains that the bees visit flowers, gather nectar, which, before being placed in the comb, must be evaporated—that is, ripened by the heat of the hive, and all water removed.

Groceries are poor places to sell honey, as the clerks lack the interest and energy to talk friendly with the public, and never know enough to tell of the food value of honey nor to keep the honey and jars looking bright and clean so as to be inviting. Therefore honey is sold only to regular users, and they gradually fall away.

Labels, to be a help to honey sales, should be plain, as a beeman's work should look. Flashy labels give the appearance of a manufactured article, and the government guarantee has a wrong effect on sales.

One of the largest packers of honey in Los Angeles twenty years ago sold from the 60-lb. can, but was induced to pack in jars. Now his sales are \$50 a day, or 1000 cases a year. Every jar sold makes a friend of the buyer, and is a standing advertisement for the store—a powerful aid in the development of the business generally.

Los Angeles, Cal.

S. K. Bennett.

This Plan would Sell Honey Anywhere.

Last September I had a lot of extracted honey left over—ripe, rich, and fragrant, but very dark. I should have been glad to get 5 cents a pound for it; but I sold it all for about 8 cents a pound, and could have sold more. This is how I did it:

I took about three dollars' worth of short advertisements in three local papers, and paid for them in honey (extracted) at ten cents. I suggested that the readers would be interested in the strange natural history of the honeybee, and the papers gave me all the space I wanted.

I also shipped some to Mobile, and spoke to the editors of the Register, one of the biggest and best papers in the South, and they were glad to get the articles. Then I gave the sale to just one firm which advertised the fact, and the honey soon vanished. It was only a few hundred pounds all together, but the experience was illuminating.

Mobile, Ala.

H. A. Moody, M. D.

Cells Completely Covered with Comb.

I had prepared a Hoffman frame for raising some queens from brood of two choice queens. The frame had a strip of brood foundation in the upper part, then a thin bar about midway, coated with wax on which the cell cups were fastened with wax. Royal jelly was put in each, and young larvæ introduced as near two-day larvæ as I could get. Just as I got the bar prepared, a large swarm came from one of my best hives. I had trouble in getting it, because it settled in the fork of an apple-tree. I sprayed the bees with water and removed two-thirds of them into a half-bushel basket, and emptied them in front of a colony with queen-cells only. Most of the bees refused to go in. The queen must have gone in but was killed. Within two hours practically all the bees of the swarm had gone back to the old stand. It was a bouncing colony. I opened it up carefully, cut out every queen-cell, and introduced my queen-cell frame. I thought I had a choice place. The next morning the bees had drawn out six cells beautifully, and the larvæ had tripled in

size over night, it seemed. I noted the date and closed the hive.

When I opened the hive again, five of the queen-cells were enveloped in comb until they were as large as walnuts and spherical in shape. You could not see the queen-cells at all, and no one could have guessed they were there. The sixth cell was the center of a beautiful piece of drone comb filling the whole space to the bottom-bar.

In looking thru the hive I found three queen-cells built up from their brood. In disgust I removed my carefully prepared queen-cell frame and proceeded to investigate my balls of comb. There was a nicely developed queen in three of them. The others, for some reason, had not developed. It may be that I injured the larvæ in grafting. The foundation above was drawn out, and filled with honey.

Yesterday I gave this colony ten cells on the same frame, and now they can raise no queen-cells from their own brood. This morning they have seven as fine queen-cells as I ever saw, the larvæ growing finely. I wonder what they will do this time. I hope they will make no more walnuts with queens as kernels. H. B. Arbuckle.

Maxwelton, W. Va.

What is a Strong Colony?

Some of my colonies had ten full frames of brood, and I felt quite proud of them. I examined a lot last week owned by a neighbor, and one queen had thirty-five frames of brood! I want to know what big beemen call strong colonies.

St. Albans, Vt.

A Beginner.

[Any queen that would keep ten combs full of brood should be called a good queen, and her colony would certainly be a strong colony. Those who use twelve-frame hives expect a queen to keep at least twelve combs of brood. Occasionally there is a report from a beekeeper who expects his queens during the early part of the honey-flow to have two ten-frame brood-chambers pretty well filled with brood. A good deal depends upon the size of the colony, number of nurse bees, strain of bees, age of queen, etc. A queen that had thirty-five full-size combs full of brood would certainly be some queen.—Ed.]

Honey to Moisten Gummed Labels.

Dr. Miller's recommendation to have the label long enough to reach around the pail and lap over would be excellent if there were no other way to make a short label stick. One drawback to the doctor's method is this: A label that would fit a five-pound pail would be worthless for a sixty-pound can or for one-pound glass jars.

I use a gummed label, the dimensions of which are about 3 by 4 inches, and I use it on any size of package. It is true, the gum alone is virtually worthless so far as securing any adherence to the tin is concerned. But by using a stiff brush to smear a thin

coat of warm honey over the gum, the label will stick, not only till the cows come home, but until these same bovines become superannuated. The philosophy underlying the phenomenon is that with any paste or gum with which I am familiar the power of adhesion decreases as the temperature goes down; it does not require a very low temperature to cause the label to curl up and fall off. But with the honey the colder it gets the tighter it sticks, and it adheres about as well in a high temperature as the gum commonly used.

I have never tried the use of honey on an ungummed label. It is but little more trouble to anoint the gum with honey than to moisten it with water, and it does obviate the everlasting necessity of resticking labels.

Has any one tried to compound a paste with honey as one of the ingredients?

Kansas City, Mo.

D. D. Downing.

[Honey with ordinary flour or starch paste makes a mixture that moulds easily. Used with the prepared pastes it is very satisfactory.—Ed.]

Wings Not There to Clip.

Tell Dr. Miller that if he had understood me properly, page 521, July 1, I am sure he would not have any reason for not being "on speaking terms with me." I did not compare him to a queen. I have never accused him of being regal. If he were a queen I am sure it would not be necessary to clip his wings, for he has none; and if I were at the clipping business with him, and wanted to keep him from getting away, I would, in spite of all the plea he has made, never stop at clipping off one leg. I would take both, and then I have no doubt the bees would have the good sense to supersede him in a very short time. See Stray Straws, July 1.

R. F. Holtermann.

Brantford, Ont., Can.

More Super Room Needed.

Will I be liable to need an extra super on hand to care for a new swarm of bees from either an old colony that put out a new swarm of bees June 30, 1916, or from the new swarm of June 30, 1916? If so, how many new hives am I liable to need for said bees during this season?

O. S. Bancroft.

Bradford, N. Y., July 5.

[The first swarm will not be likely to cast another swarm this season; but the old colony, unless watched, may send out a second, third, or even a fourth swarm. The first swarm may need an extra story of room for the storage of surplus, and the old colony also may need extra room if the second and third swarms may be kept back, which is usually done by destroying the queen-cells.

From your statement you had better have two extra supers, one for each colony. We would advise full sheets of foundation for either extracted or for comb honey.—Ed.]

A. I. Root

OUR HOMES

Editor

For God so loved the world that he gave his only begotten Son, that whosoever believeth in him should not perish, but have everlasting life.—JOHN 3:16.

And John answered and said, Master, we saw one casting out devils in thy name; and we forbade him, because he followeth not with us. And Jesus said unto him, Forbid him not; for he that is not against us is for us.—LUKE 9:49, 50.

The first text is an old familiar one. In fact, it has headed my Home papers several times in the past forty years. Just now I wish to call attention to that word *world*—for God so loved the *world*. Does that word “world” mean this beautiful planet on which we live—hills and mountains, fertile valleys, etc.? Not so. It means mankind, humanity, the human race. Somebody said recently there would not have been any world nor any planet had it not been for the purpose of furnishing a place for humanity to live. God loves humanity, and he wants humanity to have everlasting life. How little do we comprehend the full import of the words *everlasting life*! The dear Savior said, as you may recall, “Whosoever liveth and believeth in me shall never die.” I wonder if we think of this verse enough, and realize what it means. If God our creator loved the world, and still loves it, we ought also to love the world, to love humanity, and to love our fellow-men; and when we in our feeble way undertake to help in the great work of raising humanity, we get a thrill and a joy that we can get in no other way.

Just a day or two ago my youngest daughter came up with a fine-looking man by her side, and asked me if I knew him. He was well dressed, looked smart and bright, and something in his face recalled years ago. But I could not catch on until he explained a little. When he said that he was Ransom Murray I began to understand. In these Home papers about thirteen years ago I told about finding a boy in our Medina jail who was almost twenty years old, and could neither read nor write. His offense was for climbing on a freight-car and stealing a ride. He was soon let out, and went to work for the A. I. Root Co. When I told about it in *Our Homes* my daughter Carrie, who was a teacher then, volunteered to teach him to read and write, and a little later he united with our church, and now he is a bright, skillful, intelligent, and useful man. What a thrill it gave me as I realized the outcome of a little help and a little good advice at a critical time in a boy's history! Let us now digress a little.

Yesterday, July 14, was a red-letter day to me. I was coming home from the “cabin in the woods” in northern Michigan, and I was in a hurry to get home; but when I got into Detroit and learned that the boats did not run to Cleveland on Fridays I was considerably disappointed. Then I remembered similar cases when my plans had been interrupted and I had asked the dear Savior to guide my erring footsteps and show me *his* plans and what he had for me to do. I soon found some good friends whom I had learned to know and love down in our Florida home. They were located in the suburbs, and were very glad to take me with their little Ford automobile, among other things, to see where the Fords are made, or the “tin Lizzies,” as somebody has nicknamed them. While we were discussing the Ford enterprise my good friend Mr. Flower told me something as follows. He said he was not sure he had the details all straight. I presume all the world knows that one of Mr. Ford's special hobbies is to make good men out of bad men. Right here let me give you a little clipping from one of the little books sent out by the Ford company. It will be a good introductory to my story:

THE FORD IDEA IN EDUCATION.

The impression has somehow gotten abroad that Henry Ford is in the automobile business. It isn't true. Mr. Ford shoots about fifteen hundred cars out of the back door of his factory every day just to get rid of them. They are but the by-products of his real business, which is the making of men. William Carey, cobbler and missionary, asked as to the nature of his business, said: “My business is extending the kingdom of God, but I mend shoes in order to provide money to carry on my work.” Mr. Ford's business is the making of men, and he manufactures automobiles on the side to defray the expenses of the main business.

What an idea that is, friends!—the making of automobiles is only a “side issue” to Ford's lifework.* I think I have told you several times that when I first got up to speak in a union meeting I said something like this to our Medina friends:

“My friends, you all know I have always been a very busy man, and I propose to be a very busy man still; but, God helping me, henceforth I mean to be busy for Christ Jesus first and for A. I. Root afterward.”

You see my declaration then was that my little factory, then just starting for supplying beekeepers and taking their money, etc., was to be a side issue to the main business

* I clip this from a Ford pamphlet:

Henry Ford once remarked that making automobiles was merely a side line with him, that making men was his real job.

of spreading the glad tidings of God's love; and may God grant that it may be the same after I am dead and gone, for it is my aim to build up first "the kingdom of God," and a great business second. Well, now for the story told me by friend Flower. It may be fiction, but I give it for what it is worth.

He said one of the greatest and most useful men in that company of over thirty thousand came to Ford's attention years ago something in this way. The fellow had succeeded in defrauding the Standard Oil Co. of a good many thousand dollars. He was convicted, and sentenced to ten years in the penitentiary. They proved it against him, but he had so skillfully manipulated the books and covered his tracks that even expert accountants could not tell *how* he did it. They puzzled over it in vain, and finally offered to remit the sentence and set him free if he would divulge the secret—that is, the plan he had worked out to swindle the great corporation. Ford heard of it, and thought that a man of such ability should be of at least *some* use to the world, and so he employed him; and as he made himself useful in developing Ford's business his wages were increased. But he was restless, and wanted to cut loose so he could use his talents in a wider way. But I think Ford finally offered him \$50,000 a year to stay at his plant. But he refused to take even so princely a sum; but as a sort of joke he told Ford he would go on without any salary if he would allow him a dollar for every automobile they put out. Now, friends, you can see something of the outcome. When they succeeded in making a million automobiles this ex-convict got a million dollars.*

Well, friends, about a year ago I wrote the Ford company that I saw an automobile dealer in the great city of Akron who sells perhaps hundreds of high-priced machines, and he advised me to buy a Ford if I wanted to go by land to Florida; and he said this, even tho he had never dealt in Ford's machine in any way. I gave it in substance in GLEANINGS, and a copy of it was sent to Ford's people. This little inci-

dent introduced me to the manager of the advertising department. By the way, the Ford people have never given us any advertising; and I told their advertising agent, Mr. Russell Munro, that on the whole I was rather glad they had not given us any, because no one could now say that the write-up I gave them was in any way, even indirectly, paid for. Let us now get back to the humanity which "God so loved."

After I had become somewhat acquainted with the manager they called in an expert and gave him orders to "show Mr. Root everything he wants to see, and answer all his questions." This expert who went along with me was Mr. A. Lee McKay, the "courtsey manager." I told him I wanted permission to give them full credit in print. Perhaps I should explain that great crowds of people are being taken thru the works day after day by one or more guides; but instead of sending me with the crowd they gave me a personal guide; and it was a little tough on the guide, not only because I am a little deaf, but because I am an old man. He had to take my arm and twist me around thru the machinery, and then shout in my ear to make me hear. By the way, years ago when I used to take my good old mother thru our factory she did not care very much about the new automatic machinery, but she was greatly interested in looking into the smiling faces of the boys and girls who were running the machinery; and on this wonderful trip on that afternoon I honestly believe it is true that, while I was interested in the wonderful machinery, I was more interested in the great streams of humanity that were before my eyes constantly. Just think of it! There are something like 30,000 people employed in that great pile of factories, and they are mostly married men, because the preference is to give a place to men with families or boys who have mothers to support. That is a part of the Ford management.

Friday, July 14, was a terribly warm day in a good many places as well as in Michigan; and the first thing that interested me was their plan for supplying pure air, and to have the air as cool as possible. Their apparatus for supplying pure air free from dust, and sufficiently moist, is perhaps ahead of anything else in the world. Next come their arrangements for supplying *pure cold water*. In many places the workmen are obliged to work with artificial heat, say in handling furnaces and hot metals, and also in the japaning department. Well, there are great glass bottles full of cold pure water everywhere; and every workman, big or little, has a drinking-cup

* Just think of it, friends. Here was a man whose talents and ability astonished the world, and yet he might have been doomed to spend ten of the best years of his life in the penitentiary. The trouble was that he had made the mistake of devoting his wonderful ingenuity to the robbing of a great multi-millionaire syndicate instead of doing something to bless and benefit his fellowmen. The boy I have mentioned, who could neither read nor write when he was almost 21 years old, did not seem to get on well with his teachers. If I remember correctly he had been told there was no use for him to go to school, for he did not learn anything. When my daughter Carrie took him in hand he did seem a little peculiar, and yet in a short time he was able to write a letter to his poor old mother, who had not heard from him in years.

in his pocket. The bubbling fountains we see in so many places are all right; but with such crowds as they have here it would be next to impossible. These water-bottles are not only located handy to everybody, but a boy with a cart holding six bottles is all the while traveling around the room ready to replace any empty jar. I clip from one of their books as follows:

There is a department, enrolling about 500 men, whose duties are to keep the floors swept clean, the windows washed—in fact, to keep the sanitary conditions surrounding the workmen as nearly perfect as possible. The floors of the entire plant are scrubbed at least once a week with hot water and a strong solution of alkali, which removes the grease. Another department, of about 25 men, does nothing but paint the walls and ceilings of the factory, keeping everything fresh and clean.

As light is a very important matter, not a pane of glass in that great institution is suffered to get the least dusty. My good friend, let us pause a moment. How are the windows to your barn, workshop, poultry-house, or any other building you may have at just this minute? If this Ford concern can afford to keep every pane of glass scrupulously clean in their great establishment, how is it with you?

Notwithstanding the fact that Mrs. Flower was with us on that trip, I told Mr. McKay there was just one thing more that interested me as much as anything else—their public-comfort room or closet arrangements for men. He made the remark that if I saw one of them I saw the whole of them. Said he, "Here is one right here. Let us look at it."

By the way, these toilet rooms are supposed to be within a few steps of every one of the 30,000 workmen. Shall I tell you why I especially wanted to see the men's toilet or lavatory, as it is sometimes called? I especially wanted to see if there was any tobacco juice squirted off in the back corners where it would be a hard matter to get at it with a broom or scrubbing-brush. I wonder if every man in the employ of the A. I. Root Co. will read this. I hope so. Well, I guess I did see a few traces of tobacco or stains where there *had been* tobacco spittle. But the room was far in advance of what you see in hotels, railway stations, and a dozen other places. You will remember in that printed extract at the beginning of this paper there is an intimation that making automobiles is a side issue. Now keep that in mind while we go on.

In such a great establishment, with complicated and expensive machinery, it is almost an impossibility to prevent injury entirely; and I was greatly pleased—in fact, I felt like thanking God when I was

ushered into a large spacious room beautifully lighted, and kept scrupulously clean, where were half a dozen physicians and surgeons provided with every up-to-date appliance for caring for sick or injured people. While we were there two men came in, each one having a mangled or cut finger. The workman loses no time when he is accidentally hurt in this way, and he pays no fee to the doctor. I have not time here to tell you all they do for the physical comfort and for "safety first," as has been so often expressed.

Now hold your breath while I tell you something else. They have in that great establishment men from all parts of the world, and, if I make no mistake, the guide said that at least *one hundred different languages* are spoken here, and they often come to work with no other language than their own. How can you teach men to work with dangerous machinery if you cannot talk to them? To remedy this handicap they have an English school, and this school is going on all the while. Pay-day is going on all the while; and as they work in eight-hour shifts a great part of the factory is going on day and night. By the way, a great and wonderful new factory is now in process of construction to give place to *other thousands* besides the 30,000 already enrolled. Well, that English school pleased me about as much as any other one thing. The teacher was one of the crowd. He had on his overalls like the rest. While we were there he gave them a sentence to repeat after him, and I think it was this:

"The Ford Motor Co. have in their employ 30,000 people." He spoke slowly and distinctly, the most of his audience also speaking slowly and distinctly, and managed to follow him pretty well. The word "employ" seemed to be hard for their tongues, or at least some of them, and he said it very slowly many times over. Then, pointing to a certain person, he said, "I want you, my good friend, to speak that word *employ* all alone;" and after he had made him utter it fairly well he had the whole crowd follow. Now, this teacher had a special gift for teaching his fellow-men. His gesticulations and shouts and comical grimaces made me think of Billy Sunday. Oh what a glorious undertaking is the one I have just mentioned, to take an average crowd of foreigners coming from all parts of the world, and teach them a common language, including old men! My good father used to remark humorously, especially when he was getting old, "It is a hard matter to teach old dogs new tricks." Well, I begin to realize it just now, espe-

cially when my grandson is trying to teach me to run a Ford automobile.

Now, here is one other thing that pleased me greatly. We went into one room 800 feet long and perhaps 200 feet wide; and the piles of machinery, belts, and wires, made it look like the tangled forest up around that "cabin in the woods." Well, amid all this machinery were human beings so thick they made me think of bees at the front of a hive on a mid-summer day. Why, there were just clusters of men and boys so close together you would not think they could work. But they did work with such a vim that I asked if they were employed by the piece. I was told there was no piece-work in the whole establishment. My informant said that, while there were some good things about the piece system, it was so liable to start jealousy and ill feeling they had decided against it. I told him it was much the same way in our establishment of between 200 and 300 hands. Well, now, I made a little inspection of those boys and men crowded like bees in a hive. Come to look carefully, each man did one particular thing. For instance, one part of the automobiles that was being put together was located on a long stand or table, and this was pulled along slowly by means of an endless chain. As it passed, each man did something to it. For instance, one man had a box of burrs. These he put in place and turned them down hard and screwed each burr tight with an appropriate little wrench. The next added something else; and it was all so timed and managed that it were kept busy and nobody had to wait. In fact, they had to hustle sometimes to get their part finished before the machine had passed and the next one had come along. Now, you might think it would be monotonous to do the same thing over and over hour after hour and day after day. But to my surprise each man looked well and happy. Right here a great lesson comes in. These workmen are happy, and *do* enjoy their work. The things I have been telling you about, the looking after his health and comfort, is the secret. Added to it all, the institution is now "profit-sharing." Each person is a part of the institution. If it prospers, *he* prospers. If I remember correctly, they have, at least some of the time, been enabled to turn out a finished machine for very minute of the day and night.

By the way, the appliances to obviate the necessity of heavy and tiresome lifting are a wonderful feature of the institution. One of their workshops is six stories high; and away up under the roof is a traveling crane that moves the whole length (I think 800

feet) of the big room. Under this is a second traveling crane that runs back and forth at right angles; and then there are grappling-hooks that will go down to any story and pick up a load and deposit it where wanted. This system of mechanism picks up every box of materials and lays it down right where the workmen want it. In this way the workman is spared fatiguing work that has formerly been supposed to be unavoidable all over the world. A good many of the materials slide down on an inclined plane just where they are wanted. For instance, at one point the rubber wheels came down and were slipped on to the machine. Then it was pushed along until it came on to some revolving rollers in the floor. This set the wheels revolving, which cranks the machine so the engine can be tested. If everything went all right, a boy hopped on to the chassis, or the auto without a top, and ran it under a certain platform. When he got to the right spot he hopped off and the top was let down by this traveling crane, and dropped into place so quickly and surely that it almost seemed like sleight-of-hand. I said to my guide, "Why, Mr. McKay, the stories in the Arabian Nights are nowhere compared with what we see going on in this department." I asked him if it was possible for the men to get along without jealousy, bickering, or fault-finding, or things of that kind, that are so common. He said the secret of it was they tried to cultivate such relations between employer and employee that they were all loyal to the institution.

By the way, if this Home paper should be the means of inducing everybody to try to go to work for Ford, let me tell you there are ever so many thousands of applicants waiting for a place all the while. In regard to intemperance, there is very little of it, because it is understood that a man necessarily loses all chance of promotion and also *his place* if he comes to work showing any symptoms of booze. Our readers already know what Ford has done to discourage the use of cigarettes. In fact, this Ford institution is to me another reminder of what I have so often been telling you of late, that "God's kingdom *is* coming;" and it is *coming* thru means that have been brought to bear thru our great business centers and the factories as well as thru our churches and religious organizations. Whatever may be said of Ford's theological views, he certainly loves his fellow-men; and his great work, therefore, is along the line of our beautiful text that "God so loved the world."

Just a word about our second text. So

far as I have learned, Mr. Ford is not a member of any church. I hope I am mistaken about this; but the general impression seems to be that he is not connected with any body of Christian people. And yet we find him doing a reform work among people of every nation of the world that perhaps has never before been paralleled. He loves his fellow-men. He has been all his life untiring in striving to educate and uplift them. In connection with that great enterprise he has sent doctors and trained nurses into the homes of his workmen; he has taught the mothers how to care better for their children; he has looked after their sanitary surroundings, and in short he has been doing a sort of missionary work perhaps never before undertaken by any man in any organization. What shall we say? The verses I have given from that 9th chapter of Luke seem to me to hit the matter exactly. There are many strange things in this world of ours. Altho Mr. Ford may not be a follower of the Lord Jesus Christ, he has never, so far as I know, spoken against him; and the Master said, as I understand it, "Forbid him not;" and, again, "He that is not against us is on our part." My opinion is that Mr. Ford has been and is even now laying up *treasures in heaven as well as here on earth*, and perhaps he does not know it. Again, I am reminded of the passage where the people say, "Lord, when say we thee a hungered, or athirst, or a stranger, or naked, or sick, or in prison, and ministered unto thee?" The answer was, as you may recall, "Verily, I say unto you, Inasmuch as ye have done it unto one of the least of these my brethren ye have done it unto me."

HAVING SUNDAY ON SATURDAY; SOMETHING ABOUT TEMPERANCE WORK.

On page 337 of our issue for May 1 I suggested some reasons why people all over the world could not have the days of the week at the same period of time wherever they were; and in reply to what I said, a good lady writes as follows:

We take GLEANINGS and enjoy it very much; also our bees. I read every word of your paper, especially Our Homes, etc. I notice you often write under the heading, "God's Kingdom Coming." It is coming, but not in the way many think.

My dear sir, you place yourself in the class spoken of in Ezekiel 34, when you give nearly a column of your bee journal as to which day is Sunday. If you will go to a standard cyclopedia you can get the origin of Sunday. Seventh-day Adventists do not try to have Sunday on Saturday. Your argument is very old. I am an old woman, and I have heard it before; but it is not as old as *God's law* given at

creation, reiterated at Sinai, and kept by Christ and his apostles for nearly 400 years.

I have been blessed by obeying God rather than man-made laws regarding Sunday, and I am not alone. God is calling out a little flock, without spot or wrinkle, to receive him at his coming. It is my greatest desire to be one of that little company. If I were where the day of the week was disputed I would keep *the day before the one decided upon* as Sunday by the majority—always the sixth day from Sunday.

The *Temperance Annual*, gotten out by the Seventh-day Adventists, publishers, got the credit for saving Maine at the last election. Thousands of these are used by all classes of temperance workers. I send you a copy, also copies of other papers at hand, that you may see Seventh-day Adventists are trying to do their share in temperance work. I have marked the margin at the top of each copy, that it may save your time. I enjoy your talks on simple living, for Seventh-day Adventists *lead* the simple life.

Do you know that the renowned D. L. Moody accepted God's law regarding the sabbath at the last?

May God help you is the prayer of an humble reader. MRS. B. L. PERRY.

Nevis, Minn., May 18.

In the article referred to, I said I had had but one reply to my suggestion that we call Monday the first day of the week so as to get rid of the inconvenience of having different days for Sunday. The good lady who writes the above gives us a little more light on the subject if I understand it. She says wherever there is a dispute as to which day should be Sunday, *she* would keep the *day before* the day agreed on by the majority.* At first I was inclined to think this indicated a contrary spirit, or a disposition to disagree or stand out against what the majority might agree on; but in praying for a little more charity for a lot of good people, I was led to look at it in this way: These people may honestly believe that God calls on them, and perhaps all of us, to remember and respect (as a day of rest) what is ordinarily called the seventh day instead of what pretty nearly the whole wide world calls Sunday. Let me remark right here that near our Florida home one bright Sunday morning, when everybody was on the way to church, I saw one neighbor who was painting his fence fronting the street. As he was a new comer the question came up, "Is this man particularly anxious that everybody may know that he has no

* I hope our Advent friends will not feel hurt when I say that since the above was in print I saw an account somewhere of a certain Scotchman who was always pulling against the good people of his church. On one occasion a strong effort was made to have a particular motion declared unanimous, but the Scotchman stood out as usual; and then they tried to have him unite with the rest so that they might go on with their work. But he became so stirred up that he arose and said, "Brethren, I want you to understand that, so long as I am a member of this church, there is never going to be *anything* 'unanimous.'"

respect for Sunday and for Christian people, or does he wish by this act to let everybody know that *he* is a Seventh-day Adventist? I shall have to confess that I did not take pains to inquire whether he was an Adventist or not; but I cannot help thinking that his act was not only unwise, but for a stranger just coming into the neighborhood, it was also unchristianlike.

And now I want to say a good word for the Adventists. This good lady has sent me a copy of the *Youth's Instructor* for 1916.* I called attention to this annual about a year ago, and want to say again that I think it is about the best and most finely gotten-up *temperance periodical* I ever saw. The first article, with beautiful illustrations, is by former Governor J. Frank Hanly, of Indiana; and it is well worth the price of the magazine. I have heard Mr. Hanly make several addresses, and I have had some good talks with him; and my opinion of him is that he is one of the wisest and most level-headed temperance and Christian workers we have in the whole wide world. In a wet-and-dry contest I cannot think of any better literature to distribute than this *Youth's Instructor Temperance Annual*. It can be had as below:

THE YOUTH'S INSTRUCTOR. Review and Herald Publishing Association, Takoma Park Station, Washington, D. C.

THE FLORIDA EVERGLADES; A BRIEF TRIP THRU A PART OF IT BY OUR OLD FRIEND, W. C. GAULT.

Mr. Root:—Nettie and I took a trip down thru the southern part of the state in April. We went by rail to Ft. Myers, thence up the river to Labelle, thence motored across thru a wild part 21 miles to where we could again get a boat. We stopped at Moore's Haven in the Everglades—a lovely spot. Moore is a Chicago man, and owns 100,000 acres of this rich land, and is getting things fixed up to suit him. I suppose he has plenty of money in the bank and some in the pocket. I didn't feel sorry for him, but I *did* pity the poor fellow that had invested in ten acres with no money, either in the bank or pocket, and could not sell a vegetable. We went from there to Rita Island in Lake Okeechobee, and from there to one of those big drain canals which lead to the east coast at Ft. Lauderdale. It was a wild-looking place thru that sawgrass—very few birds or animals, but lots of alligators. The grass was very dry when we were there, and we saw some large fires. In one place the fire was heading toward the canal. A poor little rabbit out of breath jumped right into the canal to get rid of the fire. In another place we saw a wildcat that seemed to hesitate about going in the water, and climbed up a small bush that was green and sat there, not knowing what to do next. We were going ten miles an hour, and soon left him. The canal is 60 feet wide and 61 miles to the head waters of New River, where there is a pair of locks. We stayed over Sunday at Ft. Lauderdale, then came up the east coast to Palm-

Beach. I wasn't struck with the place—no conveniences, and a certain air of "all of self and none of thee."

I didn't see a place in all the route for which I would like to exchange our quiet little home in this lovely sunshine city. We saw some wonderfully rich land in those Everglades, but I felt that the other fellow might have it and I would stay where we had some privileges—neighbors and friends. I think that some time that country will be drained and cultivated, but it will take time and lots of money, and the fertility will have to be kept up. I have had some experience with muck land. We didn't see a trolley car from the time we left Tampa till we got back there, and didn't hear the toot of a locomotive from the time we left Fort Myers till we reached Ft. Lauderdale—48 hours.

The tourists have about all left, and some of them from Ohio write of the cold wet season. We are having lovely weather and lots of nice ripe melons and peaches. We have a few nice hens, and they continue to pay tribute. All of the good things are not in Florida, but there are a good many, and one must stay thru the summer in order to enjoy them.

St. Petersburg, Fla., June 12. W. C. GAULT.

The above was evidently not intended for print; but there are several points in it that many will be interested in. Think of one man owning *one hundred thousand* acres. Well, if this friend has money enough to open up and develop that new region, his work may prove to be a blessing to humanity. Just a word of explanation about the poor fellow who had only ten acres and no money, etc. I take it the reason he could not sell his vegetables was because he was so far away from the market or shipping-point; and this is a mistake that has been made several times in Florida. Unless your grove or truck-garden is convenient of access to some shipping-point or town or city, it may cost more for transportation than the crop amounts to, especially where the stuff has to be hauled thru deep sandy roads. The new hard roads that are now being built all over Florida are going far to help this state of affairs. The same trouble has been experienced to some extent by beekeepers, who, after having secured an abundant crop of honey, have found it not only difficult but expensive to get it to a railroad station or boat-landing.

"CHARITY SUFFERETH LONG, AND IS KIND."

On page 503, June 15, in speaking of the dispute in a Pullman car, I had something to say about Christian courtesy; and I have often wondered why people, in using the telephone, so frequently become not only impatient but uncivil. You may ask the question right here, "Mr. Root, are we to understand that *you* are always gentle and kind when you use the telephone?"

To which I answer that, on account of my deafness, I seldom try to use the telephone; but I am often obliged to listen to

* If you regard this paper of real worth as a temperance agitator and educator, send at least one dollar for twenty-five copies to give to others. Twenty-five cents will bring you five copies.

others, and sometimes I venture a remonstrance against hasty words. Now, here is something from our good old friend the *Sunday School Times* which hits the matter to a dot. Read it, and see if it hits you, my good friends.

ANSWERING THE TELEPHONE.

To rebuff a visitor is neither courteous nor Christian. Most of us pride ourselves on the fact that we would not do such a thing. Yet telephone discourtesy is one of the commonest and one of the strangest events in the everyday life of both Christians and other ordinarily courteous folks. Stop and think a moment; with what tone of voice do you answer the telephone if the bell rings at a moment when you would rather not be interrupted? An amazingly large proportion of well-bred and well-mannered Christian people make their first word of reply to the phone call in a tone either of noticeable impatience or of curtness or of weariness. Let those same persons be addressed by a friend entering the room unexpectedly, and they would not think of greeting him in any way except that of courteous, inviting welcome, even if they did not feel "welcoming" inside. Yet over the telephone they abandon that tone and spirit whenever they feel like it, and they do not realize what a sharp rebuff it means to the unknown caller at the other end of the wire. The simple test is this: do we answer the telephone exactly as we greet our friends face to face? If not, let us be properly ashamed of ourselves, and never fail that way again.

While making the above clipping from the *Times* I found something right below it which it seems to me must have a place. A good many times in this busy life of mine when I have worked hard to accomplish

something—yes, may be I have worked for months and years, and, after it was done, instead of giving me credit the great busy world gave credit to somebody else. I used to feel hurt at such times, and perhaps got a little sour toward the world. But I believe I have mostly gotten over it. Now below is that second item from the *Times*:

WHOSE RECOGNITION?

Can we be happy when we are ignored? Not if our chief happiness comes from our interest in self. But if that is our idea of happiness, we are satisfied with a poor counterfeit of the real thing. We have yet to know the meaning of the joy that is centered, not in what we are, but in what Christ is. Joy for the first time begins in any one's life when Christ has become the whole in his actual life and being. Charles E. Scott, of China, punctures a common failing when he says: "When one is in Christ, how silly and inordinate it is to waste any time or strength in trying to get 'recognized.' And what joy it is to try to get Christ recognized! My experience is that, the closer I live to him, the more it is a matter of indifference whether I personally get credit from fellow-workers for things accomplished or not." To be in Christ is to be dead to self. So the struggle for self's recognition ceases after our burial with him into death, that in all things he may have the pre-eminence.

In answer to the question, "Can we be happy when thus overlooked?" yes, we can even "rejoice and be glad" because an opportunity is afforded us to show forth a Christlike spirit. Charity, you will remember, not only "beareth all things," but "seeketh not her own."

HIGH-PRESSURE GARDENING

SWEET CORN FOR POULTRY; SWEET CLOVER SPORTING; HIGH YIELD OF POTATOES.

Mr. Root:—On page 562 you have an item on sweet potatoes and peas preventing hens from laying. I have often heard that sweet corn would stop hens from laying, but have fed my White Wyandottes Golden Bantam almost exclusively for months at a time, and they laid well, and found also that they preferred it greatly to common Dent corn, as they would pick out all the Bantam and leave the Dent on the ground.

You mention a period between old and new potatoes. I usually have old Carman No. 3 away after new potatoes, in a common cellar, in fine condition even up to September 15 one year. We eat them "skins and all."

Last summer I told you of a remarkable plant of sweet clover, and promised you seed. It grew over seven feet tall from seed planted April 15, with large thick leaves ten times as large as the common; but it was an annual variety, or annual sport, and died, dead as a ragweed. I picked off its few attempts at blossoming, or it might have seeded, and proved of value; but I fear frost would have killed it before doing so. It is odd, too, that its root was very small as compared with common sweet-clover plants of the same age. I am certain some plants with much smaller amount of stems and foliage had roots ten times as large. I regret its loss.

I planted seed of sweet clover taken fresh from plants last August, and they are now over six feet

tall, and blossoming. Alfalfa planted at the same time is only about two feet high—in blossom too.

Mr. Baldwin's thoughts on different names for the same plants are interesting. I came from Sidney, Ohio, in June, 1907, and have found names of plants here in many cases different from Ohio. I wrote you once about poke of Ohio being called skoke here, while poke is a swamp plant which grows in company with skunk cabbage, and is said to be poisonous. What we know in Ohio as lamb's-quarter is here called pigweed, but is used for greens. Dogfennel is here called Mayweed; timothy is herd's-grass; sycamore-trees are buttonball. I have heard them called buttonwood in Ohio.

We have a potato here known locally as Double Yielder, deemed by many as superior to any other in quality. It is good at digging-time. Last fall I found one hill with 35 potatoes, which I saved carefully to plant this spring. On examining this spring one was scabby, and discarded. The remaining 34 weighed 54 ounces at planting time; 23 were planted whole, and 11 cut to two pieces, planting 45 hills. I like undersized potatoes for baking or boiling, for eating "skins and all." By selecting those hills containing the largest number of potatoes when digging I have reduced the size of my strain of Carman No. 3, while increasing the number in the hill.

Packer, Ct., July 5.

E. P. ROBINSON.

Friend R., I am glad to know that sweet corn is preferred by poultry. I feel sure it must be more nourishing, and I could hard-

ly believe it would prevent laying. I very much regret your loss of the "sport" sweet-clover plant. So far there seems to have been but little attention paid to improving varieties of sweet clover. I believe it is true that the Carman No. 3 potato has the remarkable property of keeping in good condition when most other potatoes are unfit to use. I suppose, of course, you keep the sprouts rubbed off. Where potatoes of any variety are inclined to grow too large, this can be corrected by planting close together. In order to get potatoes extra early, down in Florida we plant good-sized tubers, and plant them whole. So many stems come up that this has the effect of growing a large number of small potatoes. These small potatoes are just right to cook whole with green peas.

FREEMAN POTATOES; ALSO A KIND WORD
FROM AN OLD FLORIDA FRIEND.

My good friend who writes below applied to me for some Freeman potatoes; but I was unable to find them at so late a date as the last of June. The letter below explains itself:

Mr. Root:—Your very kind letter of June 30 and the letter of previous date in regard to Freeman potatoes was duly received, and your efforts, I assure you, are very much appreciated. I had no intention of putting you to so much trouble in the matter; but I did want that particular variety of potato, and had the impression that it could be obtained in Medina. I agree with you that so good a tuber should be preserved. I regret to learn that Mr. Green has passed on, of which I was unaware until the receipt of your letter.

As Maule, of Philadelphia, advertises them in his catalog, I infer he usually carries a supply early in the season, so don't make any further special effort to find them. My conscience troubled me a bit when I first wrote your company for fear the request would be referred to you personally, for I am fully aware of what a busy life you still lead and the many demands upon you.

I read all that you write in GLEANINGS, and am greatly interested in your Florida experiments in different lines. I think you are prolonging your life and usefulness by spending the winters in that state. My chief regret is that you did not select the southeast coast, where my permanent home is, tho I bought a little place here in Rye for a summer home, and have some fruit-trees. I make a vegetable garden and keep a few hens. I had a cow last summer, but find it less work and more economical to buy milk, butter, and cream since I am here only half of the year.

Rye, N. H., July 8.

WALLACE R. MOSES.

The Freeman is not only quite early, but for quality I think it is equal to any. Our good friend Moses, who writes the letter above, has a northern home several miles from any express office, and wants his potatoes by mail—something like our old cabin in the woods, as I take it.

SUNFLOWERS FOR BEES, AND SOME OTHER
THINGS.

The following letter explains itself:

Inclosed is an article on sunflower that I intended sending long ago. I am sure I read in GLEANINGS some time last year that very little honey is obtained from the cultivated sunflower. Now, this is our main honey crop, and nice honey too. Is that another case of locality, or is it on account of the vast acreage? Seed is used for making salad oil.

Manteca, Cal.

ERNEST E. WARREN.

MANTECA SHIPPED LARGER SEED CROP THAN U. S. IN 1909; E. POWERS SOLD 1275 TONS OF SUNFLOWER SEED THIS YEAR; WHOLE CROP OF UNITED STATES IN 1909 WAS 1117 TONS ACCORDING TO U. S. REPORT, WORTH \$76,000 AT 3 CENTS PER POUND.

E. Powers has shipped 1275 tons of sunflower seed this season. The largest shipment of previous years has been 215 tons. But preparations were made to handle 600 tons this season, while the actual output more than doubled the expectations.

In 1909 California produced 120 tons of sunflower seed, and the output for the whole United States, as given by the year-book of the Department of Agriculture for the year 1909 was 1117 tons, or 158 tons less than the Manteca section produced this year.

When reduced to a matter of dollars and cents, figured at 3 cents per pound, the sunflower crop of the Manteca section amounted to \$76,500. Mr. Powers paid out over \$60,000 to sunflower-seed and grape-growers during the month of October.

My good friend, wherever sunflowers, mustard, or any other crop is grown largely, as in the case you mention above, by all means locate an apiary near by. A few days ago a subscriber asked the best kind of mustard to plant, especially for bees. I told him it would not pay him to plant mustard nor anything else exclusively for honey; but wherever there are large fields or special localities devoted to growing such things as sunflowers, mustard, etc., for the general market, there is the place for the wideawake beekeeper to start an apiary. I am glad to know that the large amount of oil in sunflower seed is being appropriated as an article of food.

THAT "POT OF GOLD," AND WHERE TO FIND IT.

The following is clipped from the opening article in *Good Health* for July:

Somewhere in summer is health. It will not come to you unbidden. You must search for it in the great outdoors.

You will find it in your garden—at the business end of a hoe handle.

Do not spend time and money at summer resorts that will only disappoint you. The pot of gold does not lie at the other end of the rainbow, but at this end, in your garden.

I wish to put in a good emphatic amen after the closing sentence.

The pot of gold is right near by; and it is in your garden or back yard. If you do not find the gold you can most assuredly find health, and this is of infinitely more value than gold.

TEMPERANCE

HAVING IMPORTANT OFFICES FILLED BY GOOD MEN; IMPORTANCE OF THE PRIMARIES.

Perhaps one of the greatest troubles that beset us as a nation is the fact that bad men *keep* getting into important offices. The temperance people sometimes take it for granted that a man is on the dry side and not only vote for him but work for him, only to discover later that they have been humbugged. Just now, here in Ohio, and I presume in other states as well, people are wanting you to vote for them. As a rule, I personally do not believe very much in voting for any man who goes about soliciting votes. Before I vote for any man I want to know something about his past record; and on the wet-and-dry question, unless a man can come right out before the people and declare, without fear or favor, that he is on the dry side, I would have nothing to do with him. The *Rural New-Yorker* says when a man tells you or writes you that he "will take the matter into consideration," turn him down. This, of course, refers principally to the temperance question. The time when such moral questions need "consideration" has gone by. That is our greatest trouble—apathy and indifference. The *American Issue* gives the figures to show what a shameful per cent of professing Christians and church members forget or ignore the importance of the primaries. As a consequence, when election time comes they are more or less helpless. The liquor party, on the other hand, are on the alert, and fully alive to the importance of being on hand *all* the time. As a result, when we come to count our votes after election there is a widespread consternation to understand how it is that there are so few *good* people and so many *bad* people. It isn't true that the bad outnumber the good, but it *is* true that an alarming part of our good and intelligent people get stupid and indifferent when they ought to be wideawake and doing their best at the primaries to head off the one who, "as a roaring lion, walketh about, seeking whom he may devour."

August 8 is primary day in Ohio.

THE SAD CASE OF SEATTLE, WASH.; ITS "DEPLORABLE CONDITION" UNDER THE DRY REGIME.

Mr. E. H. Sargent, a Medina boy who for several seasons had charge of our apirary, and who is now a prominent man at Fort Casey, Wash., has just mailed us a copy of the Sunday edition of the Seattle

Times (28 pages), largely taken up by telling of the blessing which has come to Seattle since it has been voted dry. You may have seen notices in various periodicals (that is, periodicals that accept such notices, even on their advertising pages) of the "deplorable results of prohibition in the great Northwest," "miles of empty stores," etc. Well, now, this editor of the Seattle *Times* was a wet man, and the *Times* was a wet paper. But it is almost laughable to see him turn around and own up that he was wrong. We have space for only a few of the headings found on the first page.

SIX MONTHS UNDER DRY LAW PROVES FALSITY OF LIQUOR MEN'S CHARGES.

SUICIDES AND MURDERS DECREASED BY HALF SINCE JANUARY 1; POLICE ARRESTS DUE TO LIQUOR VIRTUALLY CUT IN TWO, AND BUSINESS MEN REPORT TRADE GAINS.

Well, we've had six months of prohibition, and I can't find those miles of empty stores.

On page 16 I find the following:

The *Times* admits it was wrong when it said during the campaign against prohibition that the enforcement of the statute would mean miles of empty stores in Seattle, reduced bank clearings, reduced bank deposits, reduced rentals, reduced realty values, and general business depression. Six months ago the law went into effect. *None of the dire things prophesied for the first half of the year 1916 has occurred. On the contrary, Seattle has prospered wonderfully.*

May God grant that more editors will find themselves mistaken, and have the grace and Christian courtesy to *acknowledge* they were mistaken, as has the editor in the above.

BREWERS ADVERTISING FOR THE NAMES OF BOYS, ETC.

On page 422 I copied a letter from the Hollister Distilling Co. But the *Manatee River Journal*, published at Bradentown, Fla., "goes one better" on the advertisement I gave. Here is the way they tell it:

The following notice tells what's wanted by the saloon:

WANTED.—One hundred boys for new customers. Most of our old customers are rapidly dropping out. Ten committed suicide last week. Twenty are in jail, and eight are in the chain gang. Fifteen were sent to the poorhouse. One was hanged. Three were sent to the insane-asylum. Most of the rest are not worth fooling with—they've got no money. We are just obliged to have new customers—fresh young blood—or we'll have to shut up shop. Don't make any difference whose boy you are, we need you. You will be welcome. If you once get started with us we guarantee to hold you. Our goods are sure. Come early—stay late. Opelika Saloons, Proprietors.

Better Queens and Bees for Less Money

20 years of select breeding gives us bees and queens of highest quality---Queens for Honey production---Queens of unusual vitality---Queens that successfully resist European foul brood

Our select colonies for breeding purposes, larvae, and select drones are those of the highest standard, the choice of over 1000 hustling honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells, which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get large well nourished cells, which in turn produce large, long-lived, and hardy queens that give workers unexcelled for honey production. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved, and the best queens produced.

Price List of Our Three-banded and Golden Italian Queens, Ready by Return Mail.

Untested, ... 50 cts. each or \$45.00 per 100 Tested, ... \$1.00 each or \$ 90.00 per 100
Select Untested, . . . 65 cts. each or 60.00 per 100 Select Tested, . . . \$1.25 each or 115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.

Price List of Our Swarms of Bees for Fall Increase.

1-lb. swarms with select queens, ... \$1.75 2-lb. swarms with select queens, ... \$2.50
3-lb. swarms with select queens, ... 3.50 5-lb. swarms with select queens, ... 5.00

All orders filled at once or as desired.

We have no disease of any kind. Satisfaction we always guarantee.

M. C. Berry & Company Hayneville, Alabama

Italian Queens with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, . . . Delphos, Ohio

DOOLITTLE & CLARK

Italian queens are what you want for fall requeening. Try them! Prices: \$1.00 each; \$5 for six; \$9 per dozen.

Marietta, New York



The BEST LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.



4 MONTHS FOR 10¢
Trial Subscription To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

QUEENS AT 50c

These queens are guaranteed to be as good as money can buy. They are bred by the same and with the care as the high-priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey-gathering, gentleness, and not inclined to swarm.

	1	6	12	25	50	100
Warranted	50	3.00	6.00	11.75	22.50	43.75
Select untested	.65	3.50	6.75	12.50		
Tested	1.00	5.50	10.00			
Select tested	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.

All orders filled at once.

L. L. FOREHAND, Fort Deposit, Ala.

Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September,

75 cts. each; \$8.00 per dozen. Select tested, \$1.50.

Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, ... Glenwood, Michigan

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Clover extracted honey.

F. W. MORGAN, Zumbro Falls, Minn.

NEW ORANGE-BLOSSOM HONEY.—Two 60-lb. cans, \$9.75. Sample bottle by mail, 10 cts.
OTTO LUDORFF, Visalia, Cal.

Clover honey, extracted, in 60-lb. cans; comb in $4\frac{1}{4} \times 1\frac{1}{4}$ sections. Write for prices, etc.
E. L. LANE, Trumansburg, N. Y.

FOR SALE.—Choice comb and extracted honey; also about 90 colonies bees with all fixtures.
J. G. CRISLER, Walton, Ky.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order.
DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7 cts. per lb. also comb honey in $4\frac{1}{4} \times 1\frac{1}{2}$ -inch sections, f. o. b. cars.
JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb.
W. A. LATSHAW Co., Clarion, Mich.

New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case.
H. G. QUIRIN, Bellevue, O.

Saw palmetto honey, thick and delicate; case of two 60-lb. cans, \$5.00. Also best seagrave and mangrove honey, 7 cts. in cans or 6 cts. by the bbl. Sample, 10 cts., to be applied on order.
A. E. AULT, Bradentown, Fla.

RASPBERRY HONEY.—Thick, rich, and delicious, put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.
ELMER HUTCHINSON,
Rt. 2, Lake City, Mich.

FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb. net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address the BEEKEEPERS' REVIEW, Northstar, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMAYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—Comb honey; fancy and No. 1 qualities; $4\frac{1}{4}$ square by $1\frac{1}{4}$ sections preferred. Also white extracted honey, carload or less; quality.

HOFFMAN & HAUCK, Richmond Hill, N. Y.

BEESWAX WANTED.—Until further notice I will pay for good yellow wax 28 cts. cash or 30 cts. in trade for queens delivered here.

W. D. SELLERS, 242 Pine St., Lancaster, Pa.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.

"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—165-lb. honey-kegs at 55 cts., f. o. b. factory. N. L. STEVENS, Venice Center, N. Y.

Get our new Rubber Stamp Catalog.

ACME PRINTING CO., Medina, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine doveetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The Stanley improved cylinder cage with queen-cells, postpaid, 6 cts. each, or \$5.00 per 100. Write me for queen-breeders' supplies. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordolville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

WINTER PROTECTION.—When division-boards are put in supers at sides next brood-nest and bees seal up all cracks—thus creating double-walled dead-air chambers on all six sides of brood-nest—result is bees in our hive are in better condition in spring than those of any colonies in ordinary hives.

WM. F. MCCREADY, box 1, Estero, Lee Co., Fla.

WANTS AND EXCHANGES

WANTED.—Two-frame honey-extractor; give description and price in first letter.

DR. C. E. WAGNER, Hennessey, Okla.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER Boise, Idaho.

PATENTS

PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference.
E. E. VROOMAN & Co., 834 F., Washington, D. C.

REAL ESTATE

FOR SALE.—205 acres fine black land, and 175 colonies bees. Will sell a part or all of bees without land. Apply to A. H. COCKRELL, Campbellton, Tex.

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA. 5 and 10 acres tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

FOR SALE.—A well-located, highly improved farm of 41 acres, near Elizabethtown, Ky., together with crops, nine head of stock, 20 colonies of Italian bees, tools, etc., to be sacrificed at a bargain of \$2800 if taken at once.

LORETTO HEAD,
Box 63, Rt. 3, Elizabethtown, Ky.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry., 1934 R'y Exchange, Chicago.

For sale in the Okanogan Valley, British Columbia, Canada, ten-acre lot, surrounded with orchard, apiary of 50 hives, supers, etc., extractor, honey-house, bee-cellar, 10-room house with furniture; large barn, one horse, two sets harness, buggy, democrat, cutter, bobs, workshop, hen-house, woodshed, 12 cords firewood; no mortgage; dry climate; plenty irrigation; with crop; instant entry. \$5000 cash.

Address "MANAGER,"
V Glenalva Apiary, Lavington, B. C., Canada.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

FOR SALE.—Untested golden Italian queens, 60 cts. J. F. MICHAEL, Winchester, Ind.

Rhode Island northern-bred Italian queens, \$1. Circular. O. E. TULIP, Arlington, R. I.

Golden-all-over-queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

FOR SALE.—40 stands bees in section hives, eight-frame. THOMAS HARTLEY, Sutherland, Fla.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

Four frames bees, brood, honey, with tested Italian queen, \$4. S. COLLYER, box 183, Ossining, N. Y.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Three-banded Italian Queens; 1, \$1.00; 6, \$5.00; 12, \$9.00; Moore's strain. Satisfaction guaranteed. F. L. JOHNSON, Mt. Airy, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.

EDITH M. PHELPS, Binghamton, N. Y. East End.

FOR SALE.—Five two-story, two single colonies, in fine condition. Fair price.

MRS. H. CHRISTMAN, Middle Hope, N. Y.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Siler City, N. C.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

Italian Queens of Quality; satisfaction guaranteed. Introductory price 60 cts. each.

W. D. ROTH, Earlington, Pa.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb.

D. L. DUTCHER, Bennington, Mich.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.

HENRY S. BOHON, Rt. 3, Box 212, Roanoke, Va.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Fine three-banded untested Italian queens, northern bred, each 80 cts.; ten for \$7; fifty for \$30. Safe delivery guaranteed. M. H. HUNT & SON, N. Cedar Ave., Lansing, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1. 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The "genuine quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowelltown, Tenn.

Extra select untested golden and three-banded Italian queens, 50 cts. each; 6 for \$2.95; 12 for \$5.75. Satisfaction guaranteed.

G. H. MERRILL, Pickens, S. C.

FOR SALE.—350 strong colonies with extracting and comb equipment; unlimited range; continuous flow; water-white honey; no disease.

J. O. BAIRD, Rt. 1, Haines, Oregon.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Large well-bred three-band Italian queens by return mail; 1, \$1.00; 6, \$5.00; 12, \$9.00; guaranteed purely mated, select tested, \$1.50; full colonies, 10-frame, \$8.00; 8-frame, \$6.00, queen included.

S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN box 338J, Rt. 6, San Jose, Cal.

MILLER'S STRAIN ITALIAN QUEENS.—Still on the map with a few choice untested queens at \$1.00 each the rest of the season. J. F. MILLER,

1214 Ozan St., Pittsburg, Pa.
Formerly of Brookville, Pa.

FOR SALE.—Fifty colonies of bees in 10-frame L. hives, combs built on full foundation; 120 Danz. comb-honey supers; 1 Cowan 2-frame extractor; 8 Holtermann winter cases; a lot of bee-books, etc.
FRANCIS W. GRAVELY, Stockton, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROT TAYLOR CO., Newark, N. Y. (formerly Lyons).

FOR SALE.—Fine Italian queens, untested, 75 cts. each or 6 for \$4.00; select, \$1.00 each, or 6 for \$5.00. Strong three-frame Italian bees with good queens, \$4.00 each. All bees and queens healthy, free from all disease. Satisfaction guaranteed in all cases. EDW. A. REDDOUT, box 43, Lysander, N. Y.

Carniolan, golden, and three-banded Italian queens Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Golden and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt.15, Los Gatos, Cal.

Choice Italian Carniolan or Caucasian queens; Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, O.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular. JOHN M. DAVIS, Spring Hill, Tenn.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1. G. W. MOON, 1904 Park Ave., Little Rock, Ark.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & Co., Loreauville, La.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

NOTICE TO HONEY-PRODUCERS.—We will send by return mail three-banded Italian queens at 50 cts. each. Lots of 25 or more, 45 cts. each. A choice lot of select tested at \$1.00 each; 25 or more, 75 cts. each. No disease. Safe arrival guaranteed.

MARCHANT BROS., Union Springs, Ala.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free.

J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

PURE ITALIAN QUEENS.—Golden or three-banded, by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

Special on fine queens for my birthday.—I shall be 39 August 7. Orders dated to me for that day will be filled any time from then on at 50 cts. each or \$45.00 per 100. Pure mating, no disease, safe arrival guaranteed; three-banded only; no goldens.

First of all, I want to say your queen is all as a breeder. I have about 75 of her daughters, and their energy is unlimited, and, of course, that is the most important point. JOE C. WEAVER, Cochrane, Ala.

Breeders, \$5.00 each; tested, \$1.25 each. If you have requeening to do, try some of my queens. I really think they are extra.

CURD WALKER, queen-breeder, Jellico, Tenn.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN QUEENS.—Northern-bred, three-banded, highest grade, select untested, guaranteed. Queen and drone mothers are chosen from more than 600 colonies, noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price after the first week in August, one, 75 cts.; 12, \$7; 100, \$50. Send for circular.

J. H. HAUGHEY, Berrien Springs, Mich.

The bargain of the season—listen: *The Beekeepers' Review* to new subscribers is \$1.00 per year. Ten three-banded Italian untested queens at 50 cts. each would be \$5.00. *The Review* for the last four months of this year would be 33 cts., total \$6.33. Send us \$5.00 for the *Review* 16 months, beginning with the September number, and receive 10 untested queens, mailed you direct from our breeder in Mississippi. To get this exceptional bargain, address all orders to *The Beekeepers' Review*, Northstar, Mich.

LEATHER-COLORED ITALIANS.—Large, vigorous, three-band Italian queens that have proven that they can stand a severe winter, last winter being a test for them. For size, beauty, gentleness, and honey-gathering qualities they will surprise you. If you have foul brood, try them. It will be half the fight. All queens are guaranteed for a period of one year from date received. If you have a special case of introduction state your case, and I will advise you how best to proceed. If they fail to please you, you get your money back. Prices: 1, \$1.00; 6, \$5.00; 12, \$9.00. No foul brood in my apiary nor near me.

W. D. SELLERS, 242 Pine St., Lancaster, Pa.

BEE SUPPLIES Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

BEE SAFETY --HOW?

—By ordering Murry's queens. I have testimonials on file that my strain of bees are strongly resistant to European foul brood, Isle of Wight disease, and paralysis. Plenty of queens ready to ship on short notice from now till Nov.

1. Safe arrival and satisfaction guaranteed. No disease of any kind in my apiaries. Three-banded Italians and Golden. Untested, one for 75 cts.; six for \$4.00; any number over that, 62½ cts. each. Tested, one for \$1.00; six for \$5.00; over that, \$10.00 per dozen.

H. D. MURRY
Mathis, Texas

45c -- Golden and 3-banded Italian Queens -- 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. 1 lb. bees, \$1.25; 2 lbs., \$2.00; 1-fr. nucleus, \$1.25; 2-fr., \$2.25. Full colony, 8-fr., \$6.00; 10-fr., \$7.00. No queens at these prices. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping *The Stover Apiaries* supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller, Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 or \$5.00; Untested, 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries, Mayhew, Mississippi

Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALABAMA



The Eyes, Ears, and Mouth are Near Together

To see birds, hear their
music, and taste honey
are a happy trio. . .

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-
months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

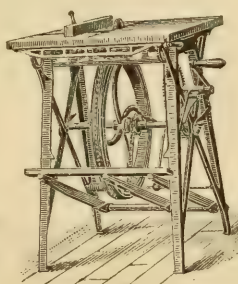
BARNES' Hand and Foot Power Machinery

This cut represents our com-
bined circular saw, which is
made for beekeepers' use in
the construction of their
hives, sections, etc.

Machines on Trial

Send for illustrated catalog
and prices. Address

W. F. & JOHN BARNES CO.
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ROCKFORD, ILLINOIS



COLORED BEE - HIVE LABELS



For tacking on to the
hives as an aid to the
better control of your
bees; very durable,
visible and attractive.
Approved by large,
practical bee-raisers.
Circular and sam-
ples free.

Arthur P. Spiller. Dept. G, Beverly, Mass.

Kill All Flies! They Spread Disease

Placed anywhere, **Daisy Fly Killer** attracts and kills all
flies. Neat, clean, ornamental, convenient, and cheap.



Lasts all season. Made
of metal, can't spill or
tip over; will not soil or
injure anything. Guar-
anteed effective. Ask for

Daisy Fly Killer

Sold by dealers, or 6 sent
by express, prepaid, \$1.00.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Why Not Declare War

against weak colonies, old
queens, and diseases by buy-
ing and requeening with my
young, vigorous, three-band-
ed Italians. They are bred
for honey and gentleness.
50 CENTS each; \$45 per 100.
This is a first-class queen at
a cheap price. Guaranteed
to be as good as money can
buy; to give perfect satisfac-
tion, and reach you in first-
class condition.

N. FOREHAND
Fort Deposit, Alabama

Zanesville Service Still Available

Effective August 1, the Zanesville Bee-supply
Agency will be under new management on account
of my acceptance of a position in the Home Offices
of The A. I. Root Co. at Medina. On and after
this date Mr. A. M. Moore, of the Central Ohio Sup-
ply Co., will be in charge.

I want to take this opportunity to thank the many
customers and friends whom it has been my pleasure
to serve during a number of years for the measure
of success and consequent promotion they have made
possible. It is my earnest desire still to remain in
touch with them. Let me bespeak for Mr. Moore the
same good treatment accorded me.

As heretofore, a full line of the best bee supplies
will be carried in stock. The new warerooms will
be very accessibly located in the Townsend Building
No. 7 Main St. Please note the change from our
present location on Third St.

E. W. PEIRCE.

Orders and all communications other than those
intended for E. W. Peirce personally (which should
be addressed to Medina) should be mailed to

A. M. MOORE, Agent
Lock Box 285 . . . Zanesville, Ohio

CONVENTION NOTICES

The Western New York Honey-producers' Association will hold its annual basket picnic and field meeting on August 12, 1916, at the home and apiary of Roy Wisterman, at Dysingers Corners, N. Y., which is located on the Lockport-Akron macadam road 6 miles southeast of Lockport or 10 miles northwest of Akron, or 4 miles south of Gasport. A good program is in preparation, and an enjoyable time is anticipated. Bring your friends, your veil, and don't forget your basket lunch. All beekeepers welcome.

WILLIAM F. VOLLMER, Sec.

Akron, N. Y., July 15.

The Eastern New York Beekeepers' Association will hold a field meeting and basket picnic at the apiary of the president, W. D. Wright, at Altamont on Aug. 11. Mr. C. P. Dadant, of the *American Bee Journal*, is expected to be with us, and address us on the past, present, and future of the National Beekeepers' Association, besides other topics. There will be two sessions. All beekeepers are invited.

S. DAVENPORT, Sec.

Indian Fields, N. Y.

TRADE NOTES

REGULAR AND SAFETY SHIPPING-CASES.

Because of the great increase in the cost of paper in all forms we find it necessary to advance prices of the regular 24-lb. shipping-case \$1.00 per 100, and of the safety cases, including safety cartons, \$4.00 per 100. In 100 24-lb. cases there are 2400 safety cartons. The price of these cartons is advanced \$1.50 per 1000, which makes the increase for cartons alone \$3.60 per 100 cases. There is, besides, the drip paper and corrugated pads, which are now costing considerably more. These pads cannot well be dispensed with. In fact, where cartons of some kind are not used, there should be divisions in the case to protect the comb honey properly for safe shipment. See editorial on this subject in this issue.

GLASS HONEY-PACKAGES ADVANCED.

Increased cost of materials affects glassware to such an extent that we are obliged to announce higher prices on the various glass packages listed in our catalog. The taper-panel jars are advanced 10 cts. a case, making the new price for $\frac{1}{2}$ -lb., 90 cts. per case; 6 cases, \$5.10; 1-lb., $\frac{1}{10}$ per case; \$6.30 for 6 cases. The round Federal and Tiptop jars are also advanced 10 cts. per case, making the new prices as follows:

Federal jar, \$1.20 per case of 2 doz.; 6 cases, \$6.90 15-oz. round jar, 95 cts. per case of 2 doz.; 6 cases, \$5.40.

16-oz. round jar, \$1.00 per case of 2 doz.; 6 cases, \$5.70.

$\frac{1}{2}$ -lb. Tiptop jar, \$1.10 per case or \$5.50 per crate of 1 gross.

1-lb. Tiptop jar, \$1.20 per case or \$6.00 per crate of 1 gross.

$\frac{1}{2}$ -oz. tumbler, \$1.00 per case of 4 doz.; \$7.50 per bbl. of 40 doz.

PREMIUM AND SQUARE JARS.

We still have 75 to 80 doz. of 1-qt. Premium jars which we offer, to close out, at 60 cts. per doz.; \$6.00 per gross. There are one dozen in a paper carton. If crated for protection in shipping, add 50c. a gross.

We have several gross of 1-lb. square jars with spring-top fastener similar to the Tiptop jar. These are worth 75 cts. per gross more than jars with cork. We offer them, to close out, at \$5.50 per gross, packed 6 doz. in a case. In our New York and Philadelphia offices we have a surplus stock of 2-lb. square jars packed 6 doz. to a case. These we offer, to close out, at \$7.50 per gross; also a limited quantity of 1-lb. with cork at \$5.00 per gross; $\frac{1}{2}$ lb. at \$4.00, and $\frac{1}{4}$ lb. at \$3.25.

TIN HONEY-PACKAGES.

New quotations received on tin cans and pails are very much in advance of former prices. We are fortunate in having a supply of 5-gallon cans, bought

before the advance, so we can continue for some time yet furnishing these cans at the present list price. We are obliged to name higher prices on the friction-top cans and pails for shipment direct from Chicago or Baltimore as follows:

2-lb. can, 500 to crate, \$16.00 per crate; 90 cts. per case of 24.

$2\frac{1}{2}$ -lb. can, 462 to crate, \$17.00 per crate; \$1.05 per case of 24.

3-lb. can, 420 to crate, \$18.00 per crate; \$1.20 per case of 24.

5-lb. pail, 200 to crate, \$13.00 per crate; \$1.00 per case of 12.

5-lb. pail, 50 to crate, \$3.75 per crate.

10-lb. pail, 100 to crate, \$10.50 per crate; 80 cts. per case of 6.

10-lb. pail, 50 to crate; \$5.50 per crate.

THE A. I. ROOT CO., Medina, Ohio.

Special Notices by A. I. Root

PAYING BEEKEEPERS A VISIT.

I am now planning an automobile trip from Medina to Springfield, Ohio, about the time that this journal reaches you, or a little later; and along the route I might make some of the readers of GLEANINGS a call of twenty or thirty minutes if they will tell me briefly on a postal card how to reach them—that is, those of you who are along the line, on my way going or coming. Therefore if you would like to see your old friend of the Home papers for a few minutes, just send in your postal card about as soon as you get this.

"EVAPORATED" HONEY—WHY NOT?

Something like forty years ago Mrs. Root put some honey into a shallow pan in the oven and let it stay with a moderate heat until the water was evaporated or driven out until it was a sort of candy. I remember the circumstance because of her remark that it was so "wonderfully delicious" that she and the children ate every bit of it, and did not save a particle for "papa," but she added that she would make some more for me to try. Now, I think we all decided it was greatly superior to common honey; but I think the matter was dropped because it was sticky, and stuck the jaws together, etc. Since then at various times the matter of "honey candy" or honey evaporated until it is very thick has come up. Our friend Rood, down in Florida, used for years a solar evaporator consisting of glass sashes placed over a box of shelves to hold the bottles of honey; and by this means we can, in time, get honey of almost any density.

One thing that brings the matter up just now is that I have just been considering that if we could get rid of the water in honey, or at least a great part of it, there would be a great saving in the matter of shipping. What is the use of paying freight or express charges on water? We have evaporated peaches, apricots, nectarines, and all sorts of fruit, and this effects a great saving in two ways: First, we get rid of the water; and, second, we dispense with the glass or tin containers that must be used with all canned fruit. Now, why can we not do the same way with honey? Howard Calvert, the father of the baby pictured in our last issue, has submitted to me some samples of honey candy. Some of it, made of pure honey and nothing else, is hard and brittle like a stick of hoarhound candy; but in the warm damp atmosphere of this weather it soon becomes sticky on the outside, and unpleasant to handle. I am told the only remedy is to coat it with chocolate. In this way it can be handled and shipped like ordinary candy; and I believe I prefer it to any candy I ever tasted. Even some of it that was a little overheated has a delicious taste similar to caramels; and my impression is (this 26th day of July, 1916) that in the near future a great industry will be built up in shipping honey in the solid form. Even if it should be necessary to coat the outside with chocolate or some similar healthful food, even then the saving in freight and the saving in glass and tin packages would be enormous. If any of you can furnish evidence of what has already been done in this direction, I shall be very glad indeed to get it.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees...	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

W. H. Laws Talking Queens

We have taken care of every queen order the present season, altho more than 2000 queens were mailed from the Laws yard in past 60 days, but in order not to get swamped we had to withdraw our ad. from GLEANINGS.

We are well supplied with queens, both tested and untested, also as fine a lot of breeders as possible to produce. Any of these can go out by return mail. Samples of live bees from my breeding queens will be mailed free to prospective buyers on request.

The time is approaching when every beekeeper should see that his colonies are supplied with strong young queens for another season. To do this you will need a first-class breeding queen now, or make your arrangements with me for queens to be introduced near the close of your honey-flow.

Prices as follows: Untested, each, 75 cts.; 12, \$8.00; 100, \$60.00. Tested, each, \$1.00; 12 for \$10.00; 100 for \$75.00. Breeding queens, \$5.00 each; six for \$25.00.

W. H. Laws, Beeville, Texas

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on	1 to	10 queens, 50 cts. each
"	11 to	25 queens, 45 cts. each
"	26 to	100 queens, 40 cts. each
"	101 to	1000 queens, 38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal. Dadant & Sons. any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July		August and later	
Select Tested Queens.....	1 for \$1.75; 12 for \$19.25	1 for 55 cts.; 12 for \$ 6.00	
Tested Queens.....	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Untested Queens.....	1 for 60 cts.; 12 for \$ 7.00	1 for \$1.65; 12 for \$18.00	
Very best queens for breeding, \$5.00. 1 lb. bees in package, \$1.25;; 2 lbs. in package, \$2.00.			

Add price of queen. If any of our untested queens should prove to be mimsated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

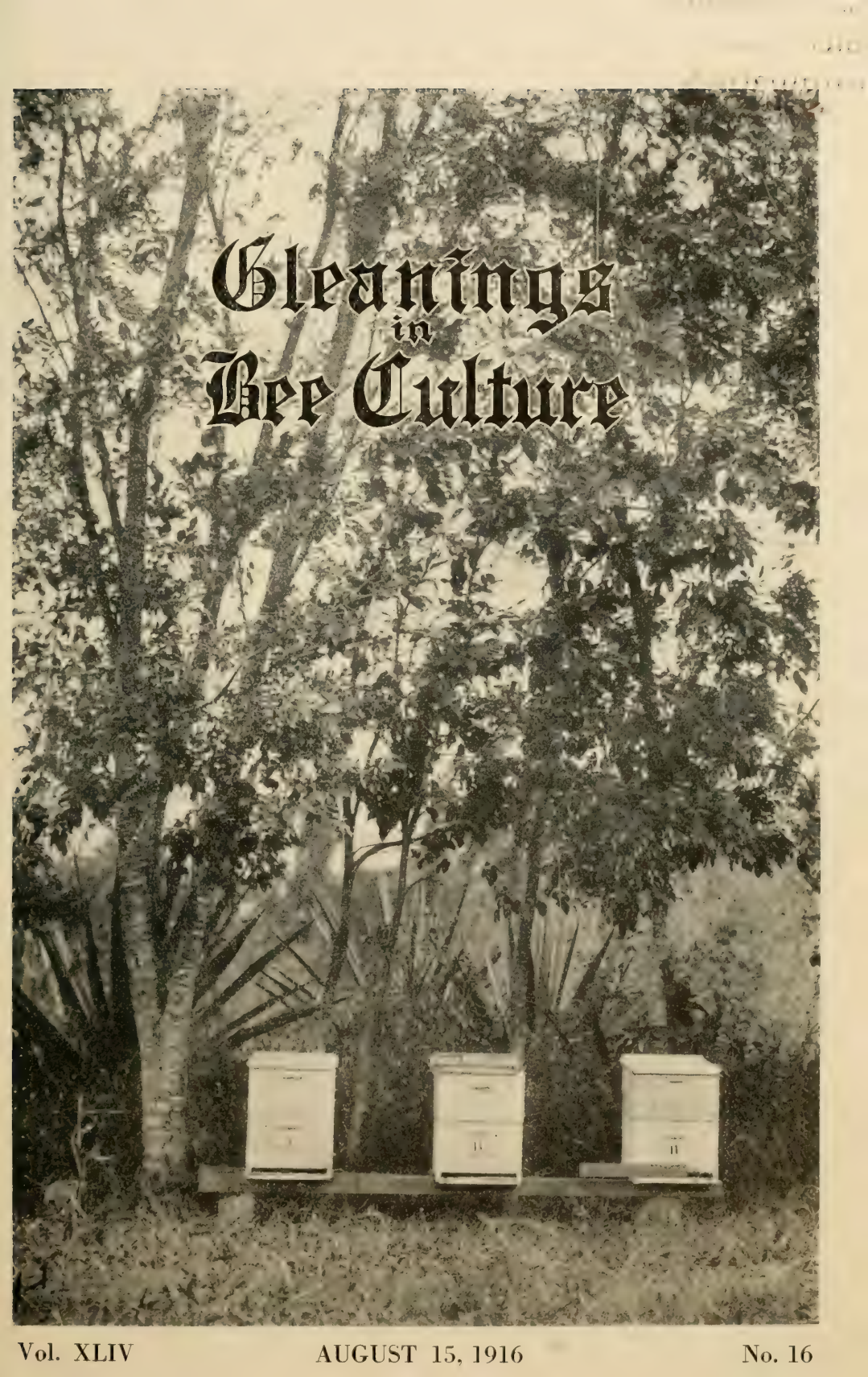
The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

A black and white photograph of three beehives in a garden setting. The beehives are white, rectangular boxes with a small entrance hole at the bottom. They are placed on a wooden platform. The background is filled with dense foliage, including trees and bushes, creating a natural, shaded environment. The title 'Cleanings in Bee Culture' is superimposed over the upper part of the image in a stylized, gothic font.

Cleanings in Bee Culture

Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 8 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 20 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate.
- 15 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-lb. cases, at \$4.00 per crate.
- All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

- There are also for the same size section, packed 10 in a crate:
- 12 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
 - 4 crates of 10 each, 6¼-inch 2-row at 85 cts. per crate.
 - 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

- For the 4¼ x 1½ beeway section we have:
- 15 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.
 - 9 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.

- 15 crates of 50 each, 11¾-inch, 2-row, for 12 sections, at \$4.00 per crate.
- 8 crates of 10 each, 12-lb. safety cases with cartons, at \$1.20 per crate.
- 5 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.
- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

- For 24 sections, 4¼ x 1½ plain:
- 1 crate of 25 each, 9½-inch, 4-row, at \$4.00 per crate.
 - 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
 - 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

- For 12 sections 4 x 5 x 1½:
- 33 crates of 50 each, 3-row cases, at \$4.00 per crate.
 - 3 crates of 50 each, 3-row for 15 sections, at \$4.00 per crate.

- For 12 sections, 3½ x 5 x 1½:
- 6 crates of 10 each, 3-row cases at 85 cts. per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼ x 1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼ x 1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½ x 5 x 1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼ x 1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼ x 1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½ x 5 x 1½ sections at 85 cts. per crate.
- 2 crates, 10 each, 12-lb. cases for 4 x 5 x 1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4 x 5 x 1½ sections, including safety cartons, \$1.20 per crate.

At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 1 crate 50 15-lb. cases for 4x5x1½ sections, at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼ x 1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼ x 1½ sections at \$5.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼ x 1½ sections at \$4.50 per crate.
- 1 crate of 10 12-lb. cases for 4 x 5 x 1½, at 85 cts.
- 7 crates, 50 each, 12-lb. cases for 3½ x 5 x 1½ sections, at \$4.00 per crate.
- 5 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each, ½-lb. square jars with cork, at 90 cts. per case.

At Philadelphia Branch.

- 1 gross ¼-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Washington, D. C.

- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 8 dozen ½-lb. Hersheiser jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hersheiser jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass

No. 1...	holding 24 sections, $4\frac{1}{4} \times 1\frac{3}{4}$, showing 4.....	10, \$2.00; 100, \$18.00
No. 3...	holding 12 sections, $4\frac{1}{4} \times 1\frac{3}{4}$, showing 3.....	10, \$1.30; 100, \$11.00
No. 1½...	holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing 4.....	10, \$1.90; 100, \$17.00
No. 6...	holding 24 sections, $3\frac{5}{8} \times 5 \times 1\frac{1}{2}$, showing 4.....	10, \$1.80; 100, \$16.00
No. 8...	holding 24 sections, $4 \times 5 \times 1\frac{3}{4}$, showing 4.....	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

		with 3-inch glass	with 2-inch glass
No. 11...	Same as No. 1.....	Nailed, 35c; in flat, 1, 25c; 10, \$2.30; 100, \$21.00.....	100, \$20.00
No. 13...	Same as No. 3.....	Nailed, 22c; in flat, 1, 15c; 10, \$1.40; 100, \$12.50.....	100, \$12.00
No. 11½...	Same as No. 1½.....	Nailed, 35c; in flat, 1, 25c; 10, \$2.20; 100, \$20.00.....	100, \$19.00
No. 16...	Same as No. 6.....	Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....	
No. 18...	Same as No. 8.....	Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....	

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides and not less than two-thirds of the way around, and not more

than 60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.

"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies . . .	6.00	30.00		5.00	25.00	
10-frame colonies . . .	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees . . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller.

Marango, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries
Mayhew, Miss.

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	1.75
Tested	2.50
Select Tested	3.50

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

LOCKHART'S SILVER-GRAY CARNIOLANS.

"LINE BRED" for the past 30 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six for \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, N. Y.

GENTLEMEN:—Enclosed you will find \$1.25 for a select untested Carniolan queen. I have bought Carniolan queens from Texas and other places, but they don't compare with your "Line Bred" strain.

Homer, N. Y., July 27.

Yours truly, M. H. FAIRBANKS.

F. A. LOCKHART & CO., Lake George, New York.

Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALABAMA



Gleanings in Bee Culture

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, La Korrigane, Avenue de la Gare. A Juan-les-pins. France. *Per year, postpaid, 8 francs.*

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ALBANY AND SCHENECTADY.—The crop of white honey will be a good one in this section. Producers are offering plenty of extracted already, but not much comb honey is ready for market yet, and weather conditions are not favorable for selling the latter. To quote prices now would be to guess at what they may be later on.

CHARLES MACCULLOUGH.

Albany and Schenectady, Aug. 3.

CHICAGO.—The new crop of honey is arriving, but so far no sales have been reported. This, probably, is owing to the extreme heat of the past two weeks, which debars sales. There is still quite a quantity offered for sale of the crop of 1915; and until this is out of the way, and the weather changes there will be little if any movement. Beeswax remains at 28 to 30.

Chicago, Aug. 3.

R. A. BURNETT & Co.

KANSAS CITY.—On account of the extremely dry weather, the honey-flow has stopped, but there is quite a surplus of new comb honey on the market. Strictly No. 1 white comb honey in 24-section cases is selling at \$3.25 to \$3.40 per case; No. 1 amber comb honey, \$3.00, and No. 2 amber at \$2.90 to \$3.00. Strictly fancy white extracted honey is selling at 8 to 8½, with a good demand. The demand for comb honey is only fairly good.

C. C. CLEMONS PRODUCE CO.

Kansas City, Aug. 5.

NEW YORK.—There are no prices established as yet on the new crop of honey, comb as well as extracted. From reports we have thus far received it seems evident that a good crop of white honey has been produced in the eastern and middle states, whereas California reports a very short crop, especially of sage honey. The old crop is pretty well cleaned up with the exception of West India, which is arriving in large quantities, and there seems to be an unlimited supply.

New York, Aug. 5. HILDRETH & SEGELKEN.

ST. LOUIS.—There is no change in this market since our last quotations. Comb honey is still very dull, and so far very little new is arriving. Southern extracted honey in barrels and 60-lb. cans is in good demand, and receipts are meeting ready sale. We quote amber extracted in barrels from 5½ to 6; in 60-lb. cans, from 6 to 6½, according to quality and quantity. Comb honey is ranging in price from \$2.50 to \$3.25 per case. Beeswax brings 29 cts. for pure; inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Aug. 5.

DENVER.—New crop comb honey is selling in the local market at the following jobbing prices: Fancy, per case of 24 sections, \$3.38; No. 2, \$3.15; No. 2, \$2.93. White extracted, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¼ cts. per lb., and amber, 7 to 8 cts. per lb. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean, average yellow beeswax delivered here.

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New York Philadelphia Medina, Ohio

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306 E. 5th St., Canton, O.

A KIND WORD.

I shall continue to take GLEANINGS as long as I can scrape up a dollar. I think A. I. Root is one of the best men in America. I am a close reader after him, and indorse everything he has to say, and I trust some time I shall have the pleasure of meeting him and shaking his hand. If he is ever down in my part of the country, I shall be glad to have him visit my home.

Doraville, Ga., July 27.

GEO. W. EDISON.

PHOENIX.—Prices on light amber, 5½ cts. in carlots; less than carlots, 6½ cts. Water-white mesquite in carlots, 7½ cts. Beeswax, 24 to 27 cts. per lb.

Phoenix, Ariz.

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We sell them in Michigan. Send for catalog. Beeswax wanted---

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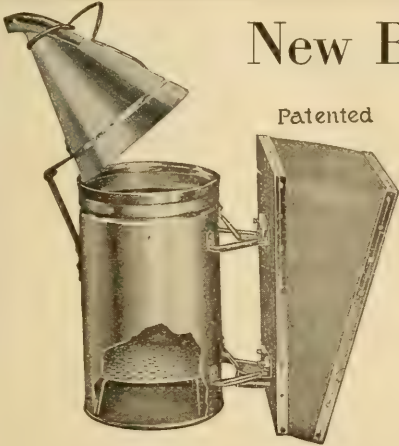
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Patent Counsel of The A. I. Root Co.

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SIZE AND MAKE-UP

Column width, 14½ ems (2¾ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

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The kind that does not break in folding

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by return freight, mail, or express

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A. W. DARBY, Alburt, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. ROOT, Editor

A. I. ROOT, Editor Home Department

H. H. ROOT, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

AUGUST 15, 1916

NO. 16

EDITORIAL

Excessive Freight on Comb Honey

WESTERN beekeepers having comb honey to ship in less than carload lots should write to R. C. Fyfe, chairman Western Classification Committee, Chicago, Ill., protesting the new classification effective Sept. 1. See editorial in last issue.

Our Cover Picture

IN most localities an ideal place for bees is that where there is partial shade. Dense shade, however comfortable it may be for the beekeeper, is not advisable so far as the bees are concerned. The picture on our cover shows three colonies kept for experimental purposes under the shade of guama trees (*Inga laurima*). In the background are shown a few yucca plants. These bees are part of the apiary of Rafael Vidal, Mayaguez, Porto Rico, whose interesting article appeared in our May 15th issue, page 409.

The Possibility of Bees Carrying Blight Germs from One Apiary to Another when Trees are out of Bloom

THE following letter received from Prof. H. A. Gossard, referring to our editorial on page 584, will explain itself.

I was quite interested to read your editorial comment on my reply, and find that you are again mistaken in supposing that I think bees carry blight to any great extent except when the trees are in bloom. However, it is not impossible that these might carry the blight germ from one aphid colony to another when trees are out of bloom, or at times when bloom is scarce and the bees are very busy collecting honey-dew. Possibly they do not visit the apple aphids to any great extent for this purpose. The blight germ will live for ten successive days in aphid honey-dew on a leaf that is moderately shielded from sunlight, and will survive even when the leaf has apparently become perfectly dry for at least one day. We have some evidence, not wholly conclusive, that the germs multiply in honey-dew as they do in nectar and in the sap of the

tree. Various species of flies and nectar-loving wasps visit the honey-dew more numerous and constantly than do the bees, and are, therefore, much more apt to become carriers in this manner.

I am also very sure that the apple orchardists of many surrounding states will disagree emphatically with your statement that blight is not to be feared to any extent on apple-trees. I am sure that fifty per cent of our orchardists would state very vehemently that, for the past three years, blight has been a greater threat to apple orchards in Ohio than any other bacterial or fungus disease or insect pest. However, I have regarded this as, in all likelihood, a temporary condition—simply a wave that sometimes comes, and that, after two or three seasons, subsides to its old status. During the present season the amount of blossom blight has hardly been beyond the ordinary—in fact, I am inclined to think that, in the state as a whole, it has been less than ordinary.

H. A. Gossard, Entomologist.

Wooster, Ohio, July 27.

The Ohio State Beekeepers' Field Meet at Medina, Aug. 25 and 26

IT has been definitely decided by the officers to hold the next Ohio field meet at Medina on Friday, Aug. 25, and the morning of the 26th. No definite program has yet been arranged. While there will be papers and addresses, the principal work in hand will be practical field demonstrations at the home yard and at the queen-rearing yard among the basswoods. New and modern apparatus for taking extracted honey will be shown on the afternoon of the first day. A power extractor, steam uncapping-knife, honey-pump, and capping-melters will all be shown in practical operation. About a thousand pounds of honey will be extracted to give one an idea of the entire method of procedure. Smaller machines will also be exhibited.

An opportunity will also be given to witness the operation of bottling honey and of making comb foundation. Arrangements will be made to carry visitors to a

few of the outyards, and lunch will be served at noon of the first day.

The operation of rearing queens from start to finish will be demonstrated at the queen-rearing yards among the basswoods.

All are cordially invited to be present at this field meet, whether they live in Ohio or some other state.

It is expected that Dr. E. F. Phillips, of the Bureau of Entomology, Chief Inspector N. E. Shaw, of Ohio, and other prominent beekeepers, will be present. Possibly and probably one of the Dadants will be with us.

—

The Color of Pollen from White Clover

ON page 521, in his regular department, Dr. Miller raises the question whether Mr. Lovell, in his article on page 477, has properly indicated the color of pollen from white clover. Mr. Lovell replies as follows:

Mr. Root:—I have just read Dr. Miller's remarks, page 521, on the color of the pollen of white clover. My article was written in the winter, when there was no opportunity to examine personally the color of white-clover pollen, and I was confident that I had seen it stated that it was greenish yellow. This afternoon I have been studying the color of the pollen, both in the field and under the microscope, and my results lead me to believe that Dr. Miller has considered the matter chiefly from the hive end.

The color of the pollen on fresh anthers which have recently opened is not brown, as Dr. Miller says, but yellow, as in the case of many other flowers. Under a lens, with the light falling on it, the pollen has a golden sheen similar to gilt tinsel. In the field I noticed that a number of bees had small balls of brown pollen in the pollen-baskets. If this was collected from the white clover it must be remembered that it was moistened with saliva and perhaps other glandular secretions, and manipulated by the fore and middle legs before it was deposited in the baskets, which might easily give it a color different from what it has in the anthers. Did Dr. Miller examine the pollen in the anthers of fresh flowers?

If you will examine a head of white clover you will notice that there are no anthers exposed—they are all enclosed in the carina, or keel. When a bee alights on a flower and pushes down the carina and wings (alæ) the anthers and stigma protrude and strike against the under side of the body of the bee. When the bee flies away, the anthers again return within the keel. It is, therefore, not an easy matter for a bee to collect pollen directly from the anthers of white clover. Of the bees sucking on white clover, which I watched this afternoon, not a single one attempted to gather pollen. Many of

them had no pollen on the thighs; but a few, as stated above, had small balls of brown pollen in the baskets. Whether this was white-clover pollen I cannot yet say definitely. I then watched the bees flying into the hives, as they returned from the field by hundreds. The white-clover flow is here at its height. Many, very many, of these bees brought in no pollen; others had balls of yellow pollen which may or may not have come from the blossoms of white clover. A single floret of white clover yields only a small amount of pollen. This may be rubbed off on the ventral side of the bee, which is then able to gather it. How far does it do so? Has Dr. Miller examined the pollen in his hives under a microscope? Is he certain that white-clover pollen is as abundant as he supposes?

The yellow pollen which I noticed on certain bees flying into the hive seemed to me a different shade from that of white clover.

John H. Lovell.

Waldoboro, Me., July 5.

—

Honey-crop Conditions and Prices; the Effect of the Drouth

HAD it not been for a general drouth which set in the last of July, there would have been an enormous crop of clover honey. As it is, there has been a large yield in many localities in spite of the shutting off of the nectar supply. In some others the dry weather stopped the flow just when it was getting ready to make a good showing in the supers. In still others it checked the flow just as it started. Taking everything into consideration, in all probability the clover crop will be much larger than that of last year, but probably no larger than it has been some other seasons.

The best clover flow seems to center around Michigan. From that state reports are universally favorable. With some exceptions they are good in Wisconsin, Minnesota, Iowa, Kansas, Missouri, Ohio, Pennsylvania, New York, and all the New England states. In all of the territory named (and that covers the largest part of the clover area) there have been some partial and complete failures; but we believe we never encountered a season when the reports were more uniformly favorable thruout the clover area than this year of 1916.

The drouth is so severe in some localities that it may kill off the clovers this fall. If so there may be a possible failure of clover for next year. This means that if prices on clover honey go too low, and the beekeeper can afford to do so, he will hold his crop over for next season.

Reports from the western territory com-

prising the alfalfa and mountain-sage country, are somewhat meager and scattering. There were very heavy winter losses in Montana. Many colonies were so weak that they were in no shape to catch a flow, even if it had come. In many portions of the state it did not come, so we shall not expect much from Montana.

In Nevada according to one report late frosts injured the alfalfa, and there will be only from a third to a half of a crop of alfalfa. Around Reno the main flow, starting about July 3, is already gone.

In Colorado the few reports we have received indicate from a light to a fair crop.

In Arizona and Imperial Valley, California, the yield has been below normal. Some of the largest beekeepers in Imperial Valley are discouraged. Further north in California the crop has been estimated at from one-fourth to one-half of a crop.

The possible and probable shortage of honey in the West, comprising the irrigated districts, the severe drouth in the East, with the prospect of clover being short next year, may have and should have a tendency to hold up prices, altho if reports are correct it is evident they will sag below those of last year. During the middle and fore part of July it looked as if prices on both comb and extracted clover honey would go down to a low level. Buyers were very shy about making offers. In one case a buyer refused to make any offers, and finally, after repeated requests to name some figures, he mentioned six cents on a fine article of extracted. The buyer made this low offer expecting it would be turned down as he did not wish to buy then; but he was snapped up instantly with a carload, with the offer of more at the same price. This has had a tendency to demoralize prices; but the drouth has given prices an upward boost and beekeepers are more hopeful.

TRAVEL-STAINED COMB HONEY.

The market is still well stocked with a fine grade of comb from last year. The new crop is now ready to be delivered, and it is reasonably certain that the prices will be easier.

Probably some of the comb honey this year will be travel-stained because the clover yield, owing to the rainy weather followed by drouth has been irregular—a little every day, then stopping entirely, and then starting briskly. With conditions like this where the flow is slow, there is almost sure to be some travel-stained comb honey.

Our readers are requested to send in their postal-card reports. Indicate what the final yield has been, and what prices are being secured. In mentioning prices,

be sure to say whether they are retail, wholesale, or jobbing.

Later.—Some good rains have followed, and the drouth seems to be broken for the time being.

U. S. DEPARTMENT OF AGRICULTURE

The Isle of Wight Disease or Bee Plague in Ohio

THE bee-inspectors of Ohio have found in several of the apiaries in southern Ohio and in the western part of the state a disease among the adult bees resembling bee paralysis or Isle of Wight disease. In some cases the colonies have been considerably reduced in strength, right in the midst of the honey-flow. Some scare headlines in the daily press have appeared, referring to a certain bee plague.

In our issue for July 15, page 583, we mentioned the fact that Mr. C. H. Boccock, of Newmarket, England, who had been investigating the Isle of Wight disease for the Board of Agriculture of Great Britain, had come to this country to discover whether we had the same or a similar disease here. On the very morning that the scare headlines concerning the bee plague appeared in our daily papers Mr. Boccock arrived in Medina. At the earnest solicitation of Dr. E. F. Phillips we drove with Mr. Boccock over to Weston, Ohio, where we met by appointment not only Dr. Phillips, but Bee Inspector N. E. Slaw, of Ohio.

This Weston apiary is owned by one of the assistant inspectors, Mr. A. C. Ames. Unfortunately for the purpose of this investigation the disease had almost disappeared at the time of our visit. In fact, it has been in the habit of coming and going. Sometimes the disease will nearly disappear, and then return with all its former virulence. Mr. Ames, altho situated in a favorable locality, had estimated that his crop of honey had been materially reduced on account of the heavy losses from his hives. On some occasions a number of dead and dying bees were scattered all over the vicinity—so much so that the dead and dying bees attracted the attention of many people who were not beekeepers. "You can imagine," said Mr. Ames, "that when other people find dead and dying bees all over the ground, within a short distance of the apiary, the situation is somewhat serious."

Mr. Phillips and one of the bee-inspectors reported finding a similar trouble at several of the southern apiaries that he had inspected.

On arrival at the Ames apiary we repaired to the beeyard. As already stated, the disease had all but disappeared; but

there were several specimens of diseased bees scattered at the entrances of some of the hives. They made a vain attempt to fly, and appeared to be in great distress. There were no symptoms of bee paralysis; and the trouble, whatever it was, appeared to be different from anything else that the average beekeeper in this country encounters. There were numerous dead bees in front of the entrances of nearly all the hives; but neither the dead nor dying look any different from the ordinary normal bees. Beyond the conditions of apparent distress and disposition to leave the hives, there seemed to be nothing wrong. Mr. Bocoek examined the bees very carefully. He was entirely of the opinion that it was not bee paralysis such as he had seen in various parts of the United States, but he thought the bees showed the initial symptoms of Isle of Wight disease.

Some specimens of the bees had been sent to Dr. Phillips to be examined by his bacteriologist. An examination of the intestines showed that they were destroyed. But in only *one bee* was *Nosema apis* found. All the rest showed none.

When Mr. Bocoek was in Washington he and Dr. Phillips examined a colony of bees in Maryland that was badly affected with paralysis. In fact, according to Dr. Phillips, it was a typical case of American bee paralysis; but not in any one of the affected bees could *Nosema apis* be found.

At the Ames apiary, at the time of our visit, the bees were working briskly on red clover. They had so nearly recovered that they were storing honey in supers. Some of the colonies were two and three stories high, and appeared to be in a high state of prosperity. Had our attention not been particularly drawn to the situation, nothing abnormal would have been noticed; but that there had been trouble was very apparent. If it is Isle of Wight disease it must have been waging a losing fight against bees which were nice Italians.

THE ISLE OF WIGHT DISEASE IN GREAT BRITAIN.

Mr. Bocoek reports that it is his opinion this disease has destroyed 80 per cent of the bees in England. It has made particular inroads in Hampshire, Berkshire, Cambridge, Suffolk, Norfolk, and Essex counties. It has spread from southern England clear up thru the whole country. So far there seems to be no remedy, and the bees die off by the thousands in and out of the hives. It has been discovered that some strains of bees are much more resistant than others. The black bees of Great Britain fall easy victims. Mr. Bocoek and

his associates have observed that Italians show most resistance, and he is somewhat of the opinion that the American Italians would hold the Isle of Wight disease in check.

It is possible that some apiaries in Ohio and elsewhere have had the Isle of Wight disease; but so far no apiaries have been completely wiped out, and practically all of them, sooner or later, have entirely recovered. If the Italians are more resistant to the Isle of Wight disease—and we know they are more resistant to American foul brood—it will afford a great deal of encouragement not only to our American beekeepers but to the British as well.

While *Nosema apis* has been found in the intestines of the Isle of Wight diseased bees, the very fact that the same organism is found in healthy bees leads to the opinion that it is not the only cause.

It is well known that the germs of pneumonia may reside in some human beings that are resistant, but cause an immediate outbreak of the disease in other persons to whom these germs are communicated. If *Nosema apis* is the primary cause of the Isle of Wight disease, then apparently it has no effect on some strains of bees, particularly on a vigorous strain of Italians. On the other hand, it is possible that *Nosema apis* has to work in conjunction with some other organism before the actual Isle of Wight disease makes any headway. There is much to be learned of this peculiar malady that has wrought such destruction in Great Britain; and if Mr. Bocoek shall be able to throw any light on the proposition he should and will receive the thanks of both American and British beekeepers.

In this connection it should be stated that *Nosema apis* is not a bacterium but a protozoan. It is, therefore, much more difficult to handle. Whatever it is, it seems to act on the inner lining of the intestines of the bees. In some cases it breaks down the tissues altogether.

From the various reports of the peculiar disease that has attacked adult bees, it is apparent that there is something in the United States that is not the same as bee paralysis; but the very fact that the trouble, whatever it is, disappears in the second season shows either that we do not have the Isle of Wight disease, or that *that* disease is not able to make any serious inroads among the American Italians; or it may be possible that our climatic conditions are enough different to make serious inroads of the disease impossible in *any* strain of bees.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



ALLEN LATHAM, in speaking of rearing queens, p. 593, you mention "the employment of a full colony of bees for some days" as a matter of expense. "In this locality" it isn't a matter of its expense at all, for during the busy season there are always colonies doomed to ten days' queenlessness to keep them from swarming.

P. C. CHADWICK, I accept your correction, p. 587. It wouldn't do at all to set out cappings as a free-for-all lunch in any foul-broody locality. But the bees can clean them up without any such exposure, by the plan given by H. H. McIntyre, p. 596, or something similar. But I can't agree that the worst feature is the danger of starting robbing. I'd rather have robbing started than foul brood; and anyway it wouldn't start robbing "in this locality." [We are glad to get your indorsement of the McIntyre treatment of cappings. It seems to us that the plan is excellent.—Ed.]

THE doctrine is advanced, p. 517, that when it is uncertain whether a virgin is present, the thing to do before risking a laying queen is to give a frame of brood to see whether cells will be started. I've practiced that no little, and have also practiced giving young brood to a nucleus having a virgin, so as to hurry up her laying. But some New England beekeepers objected that that was a pretty sure way of losing the virgin, and I'm afraid they are right. At any rate I found that more virgins disappeared a year or two ago in nuclei to which I gave brood than in those I let alone. I wonder how others have found it. [It is our practice to give young brood in colonies that we suspect to be either queenless or having only a virgin. Rather than keep the colony queenless longer, we desire to introduce a laying queen. But it would be quite useless to attempt it unless we knew positively that the colony was without a virgin, which fact is determined by the building of cells. We would rather lose the virgin than to start laying workers.—Ed.]

If you do a good job of looking for cells and cell-cutting, and have your queens' wings all clipped, and do it regularly once every week or ten days, you will be absolute master of the swarming problem so far as comb-honey production is concerned," says W. A. Latshaw, p. 608. I can imagine with what eagerness some beginner will say, "That's just what I want. How easily I

can prevent swarming!" And then the bitter disappointment when he finds his bees swarming out, possibly the next day after he has carefully cut out every queen-cell. It is within the range of possibilities that Mr. Latshaw has a strain of bees that can be kept from swarming by cell-cutting; but the average beginner—indeed, I think the average veteran—has no such bees. For a great many years I have practiced cell-cutting, and I don't think I could be induced to give it up. I have tried to encourage every tendency toward a non-swarming race of bees. Each year I have a good many colonies that go thru the whole season without swarming that would be practically certain to swarm if I didn't kill cells. But I'm sorry to say that I have a much larger number that, without any other treatment, will go straight on to swarming, in spite of all the cell-cutting I may do. So long as I find upon each round nothing beyond eggs or very young larvae, I keep on cutting cells. But if I find cells sealed, or nearly ready to seal, I know that cutting them out will do no good, and that if I trust to cutting out such cells such a colony will be practically certain to swarm, possibly inside of a week, possibly the next day, with only eggs in cells. Cutting cells delays swarming, in some cases prevents it, but cannot be relied on in the majority of cases. [We quite agree with you, doctor. We kept swarming fairly well under control this season, but the boys were instructed to cut out the cells when they were just started, and to keep on cutting them out every seven days. They were further told that if the cells got well under way, honey conditions fair, and weather hot, the swarming would probably take place in spite of the cutting. Like yourself we cut out the cells anyway, gave lots of room and bottom ventilation.]

The great trouble is, beekeepers let the season and the bees get ahead of them. In bee culture there are certain things that must be done at a certain time. Mr. W. A. Latshaw probably had conditions that were favorable, and very possibly and probably he cut out the cells when they were very young. But if he has since had a season like this one he will probably come to the conclusion as did one of our outyard men who came in one day very much disgusted, saying cell-cutting was "no good, as the bees go on swarming just the same." Further investigation showed that cells were pretty well advanced, and swarming well under way.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



My observations agree with Dr. Miller as given on page 469, June 15, that queens very decidedly prefer old comb to new, especially in early spring. After the weather is hot it does not seem to make so much difference.

More clover in bloom than I ever saw before in one year. I think I have seen just as much white clover before, but now it is white and alsike. I never saw an alsike-clover blossom till after I was twenty-eight years old.

Riding thru a large fruit-farm recently where cherry-trees had been set between every other apple-tree, I couldn't help noticing how much more heavily the trees were loaded with fruit as we came near where the bees were placed in the orchard.

There is a difference of opinion as to the advisability of our country making large expenditures in preparing to meet an imaginary enemy. But there is but little question as to the wisdom of the beekeeper being prepared for the flow of honey when it comes. I believe in this kind of "preparedness."

Swarmed, swarm, swarming! I never knew such a year. Bees began the latter part of May, and they are still vigorously at it, July 16, and it looks now as tho they would keep it up till August or September. If honey had been stored in proportion we might rejoice; but it was too cold and raw till June 23, since which honey has been coming in in a pleasing way.

I was pleased with the editorial in GLEANINGS for June 15, on "Exaggeration in Advertising;" in fact, I was delighted. It cannot be denied that, during the last year, there has been more or less advertising that was no credit to the advertisers nor to the journals publishing them. It is a source of pleasure to know that this sort of thing is to be cut out in the future, and that the brakes are on with a vim.

Dr. Miller, on page 427, June 1, refers to drones reared in queen-cells, or, rather, an attempt of bees to rear a queen from drone eggs or larvæ. We run across such, I believe, every year, and sometimes many of

them. I have never known a drone larva to be exchanged for a worker larva; nor have I ever known such to hatch, altho the drone larva in such cells seems to reach nearly maturity before it dies.

I am much interested in that new edition of the A B C and X Y Z of Bee Culture. At first it was the A B C book; and when it had grown older and larger it became the A B C and X Y Z book. Now, isn't it about time it lay aside these juvenile and youthful names and take on the more mature and dignified name of "Encyclopedia of Bee Culture," which it really is? I am astonished at the amount of information it contains when I look it over, and it is a pleasure to recommend it to beginners seeking information.

Mrs. Allen, p. 428, June 1, expresses her amazement that the tradition of the necessity of informing bees of the death of any member of the family is still believed by many persons. This is an old and instructive tradition or superstition, as we may call it. How did it start, and why has it been handed down from generation to generation? In earlier ages, when less was known of bees than at present, some one died; his bees were neglected, and they, too, many of them died. Many such cases may be remembered by some one who then tries to account for it. It may have been suggested that, as bees were very wise and sensitive creatures, they should have been informed of the death of their master. No one had done so, and the bees have died. Surely this must be the cause. So it is handed down from one to another, no one taking pains to study into the real cause of the death of the bees. These thoughts have been suggested by looking over a yard where the owner died last fall; and I said to myself many times as I looked them over, "I guess no one informed these bees of their master's death." It was in early May. I was told there were 128 colonies last fall, but I found only 100 alive. Some 50 more were nearly gone. There were, indeed, only a few really good colonies. Some had starved. Some I found with feeders still on the hives; some with leaky covers; some without packing. A great gap had been left in a fence put up for a windbreak, so the north wind had a fair sweep thru the yard. Surely it was a sorry day for that yard of bees when their master died, and they had to pass the winter with so little care.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



THE BEXAR CO. ASSOCIATION PICNIC.

A most interesting event was that of the annual beekeepers' field meet and picnic at the apiary of Mr. E. G. LeSturgeon, about seven miles south of San Antonio, on June 18. The gathering was quite large, and consisted of representative beekeepers from Bexar and adjoining counties. Refreshments were amply supplied, and there was "buzzing" of beekeepers during the entire day. The value of such coming together can not be estimated in dollars and cents.

The afternoon was profitably devoted to a program of timely discussions by some of the prominent beekeepers. The old veteran beekeeper, M. M. Faust, of Floresville, discussed the foul-brood situation and inspection work, and touched also on the market conditions existing at the present time. The writer followed with a plea for co-operation and organization of the beekeepers in order to prevent the disastrous losses thru low honey prices brought about by improper handling of our honey crops. In this he was joined by B. I. Solomon and E. G. LeSturgeon in vigorous remarks in the same direction.

The outcome of the above-mentioned meeting was a motion by the writer that a meeting of the honey-producers of Texas be called at an early date by a properly authorized committee to be selected, and that an effort be made to organize along the same lines as those of the Colorado honey-producers and other like organizations that have been successful in marketing the products of its members. A call for such a meeting was issued July 1, signed by E. G. LeSturgeon, secretary of the Bexar Co. Beekeepers' Association; M. M. Faust, of Floresville, for Wilson Co.; Louis H. Scholl, of New Braunfels, for Comal Co.; Louis Biediger, of LaCoste, for Medina Co.; Henry Brenner, Seguin, for Guadalupe Co.; W. A. Winters, Jourdan, for Atascosa Co. This was the beginning of the move for organization.

THE TEXAS HONEY-PRODUCERS' ASSOCIATION.

A new record was established in Texas beekeeping when the greatest gathering of most of the foremost beekeepers assembled in the Chamber of Commerce Hall, San Antonio, July 15, in response to the call above mentioned. Over fifteen thousand colonies

were represented by the owners present, among them being more than a dozen with 500 colonies or more, and running up to over 1600 colonies as the highest number of any one beekeeper.

After much timely and valuable discussion on the question for which the meeting was called, the writer's motion to organize and adopt the Colorado Honey-producers' Association plan and rules, with such changes as may be necessary, and to appoint a board of seven directors to perfect the organization, was duly carried.

The officers and directors are as follows: President, Louis H. Scholl, New Braunfels; Vice-president, W. J. Stahman, Clint; Secretary, E. G. LeSturgeon, San Antonio. A manager and a treasurer are to be selected later.

A capital stock of \$25,000 in \$10 shares, with a limit of one hundred shares to any individual or group of individuals, was decided upon. Over \$5000 of this stock was subscribed for before the close of the meeting, and it is hoped that the rest will also soon be taken care of.

There are to be a good many benefits for the members of this organization aside from the effort to obtain better prices and a better market for the beekeepers' products. Co-operative buying and selling of supplies and other needs of the beekeeper are to be taken care of. The dissemination of information on crop conditions, market prices, market conditions, etc., are all to be looked after, and the protection of the members in a number of directions is to be another important item.

A BIG FIELD FOR THIS ASSOCIATION.

There is much to do for this new organization. With an effort in the direction of putting on the market thru its organization a superior and more uniform pack of honey, graded according to the rules set down by the association, one step toward a better market and better prices will have been obtained. The next most important effort is that of regulating, as far as this is possible for the association to do so, the prices of honey, instead of letting this go on rampant as has been the case almost every year. With a hearty co-operation of the beekeepers this association can do much in this direction, and the beekeepers as a whole may enjoy the benefits therefrom. I am looking for better times for the Texas beekeeper, if the beekeepers will help make them so.

E. G. Baldwin

FLORIDA SUNSHINE

DeLand, Fla.



Continued from July 15th issue.

"Are there many beemen about DeLand? I used to think there was not much chance for an apiarist anywhere in the high pine-lands; but conditions may have changed."

More all the time, or would be, did not an occasional bad year like the present, for orange honey, keep over-enthusiastic beginners or recruits from the business. Our only source of good table honey here is, however, that from the citrus fruits (orange, grapefruit, etc.).

"Do you have trouble with dragon-flies? We do, and also from skunks at times."

About every other year, on an average, the dragon-flies "gobble up" half our virgins on their wedding-tours! This year, happy to say, they have been conspicuous by their absence. As a result, our virgin queens have mated beautifully, and with almost no loss. I wish I knew the cause and remedy. I am still hoping that the U. S. Department, under the direction of Dr. Phillips, may be able to get at some method of exterminating the pests. "Jimmy Skunk" does not bother us here at all, nor anywhere else where I have ever run an apiary.

"In spite of all the pests we have, I average about 120 lbs. per colony, in fair years, and as high as 150 lbs. in good years. One year I extracted 10,680 lbs. of honey from 88 colonies (121 lbs. per colony). The best I ever did was to get 183 lbs. per colony from 20 colonies extra strong in one season."

Your average is good for any part of the state. Especially does it seem to me that your average of 121 lbs. per colony, which you say was from saw palmetto, is a remarkably fine showing. I should say that this can not be duplicated from that source oftener than once in a dozen years. Do you? Your record of 183 lbs. per colony, while not bad (indeed, very fine), is not anywhere near the state record for a rousing yield. A record of 400 lbs. per colony has been made on the East Coast. Mr. W. S. Hart, of Hawks Park, secured 41,000 lbs. of fine honey from 116 colonies, spring count, being an average, you will see, of 353 lbs. per colony for the season for the entire yard (extracted honey). But that was "before the freeze" in 1894-'5 (will A. I. R. note this, see p. 335, April 15?).

The June bloom of orange-trees in the state this year was a marvel. It was never

before so profuse. Tho it did not last as long, nor yield generally as much as the same bloom would have done in March, some report as much as 60 lbs. per hive from this source in June. Mr. Harry Hewitt, of Apopka, Fla., seems to have won the prize for big yields from it. We congratulate him, especially as his early crop was a failure.

OUR BEES HAVE GOOD WINGS AND STINGS.

"Brother Baldwin, were it my privilege to assign you a task I would give you the problem of introducing a bee into your state that would fly more than 1¼ miles for nectar," p. 429. Friend Chadwick, did I think for one minute that we have not already such a bee with us, I would take the first train for California and secure some of the good Sunset stock of the State of the Golden Gate, with which to improve our flying qualities. The orange-trees, for example, near us, bloom at varying periods. I have traced my flying bees directly and unmistakably by their route thru the air, straight from the yard to groves 2 and 2½ miles away, many times. I have done this with honey coming in at profitable rate too; and I have known them to go two or more miles to the mangrove islands, and gather successfully and profitably. Moreover, there is no saw palmetto within a radius shorter than two miles from my home yard; and yet my bees gather considerable palmetto honey. So you see, friend C., I do not accept the premise you assume. I am wondering if possibly you do not confuse the initials of my name with those of a good friend of mine, Mr. F. M. Baldwin, of Sanford, Fla. His remark in a previous number of GLEANINGS seems to have suggested your reply. I am sure his conclusions would not hold for the state as a whole, however true he may have found it on special occasions. No, our bees, our "Cracker bees," can fly as far and sting as hard as any in the Union.

SHALL WE DESTROY THE BEE-MARTINS?

No matter how well "prepared" a teacher may be, now and then will come a query that seems at first somewhat of a "poser." Such was our experience lately. A good friend of our fraternity, and a successful real-estate man as well, Mr. S. H. East, of Clearwater, Fla., sent us the following:

What information can you give me about bee-martins or kingbirds, as enemies of bees?

The pretty little fellows, with white breast, gray back, and red or purple under the gray top-knot—such are very numerous around here, and pick up a lot of my nice bees. Shooting is too slow, and rather expensive. If it can be established that they take only drones, I won't mind, as I have plenty of drones and to spare. I find the crew chockful of bees, but have not been able to determine whether they are drones or worker bees.

When I had read this I stopped and scratched my head; then I did it some more. I had had experience with almost everything that flies about the apiary; but this was more avicultural than apicultural—more biological than beeological. Tho the pretty bee-martins are housed by my neighbors, and fly often about our home place, I had, personally, never seen them haunting the beeyard, nor had they ever impressed me as enemies of the bees. In fact, I had always had a lingering impression somewhere in the back of my head, from my boyhood days, that they were really friends, not enemies. However, not wishing to hazard a guess I wrote at once to Washington, and also to the State Department at Harrisburg, Pa. The replies that came promptly were so illuminating that it seems most pertinent to the time and place and circumstances to quote them at some length.

Professor Surface, Economic Zoologist of Pennsylvania, and well known to all bee-men, himself an apiarist of considerable note, and a careful and accurate scientist, says that the bee-martins are kingbirds that are flycatchers. Examination of hundreds of stomachs of these birds has shown that they but rarely eat worker bees; that they eat more drones than workers; that out of hundreds of stomachs examined, only four or five were found that actually contained the remains of worker bees. He adds that they *do* feed altogether on insect food, among which are some of the worst pests of the cultivated plants and trees, and even eat larger insects like robber flies, the latter being enemies of the bees. As the robber flies eat honeybees (including workers and queens), the martins perform a real service to beemen.

We also wrote to Dr. Phillips, of Washington, who referred our letter to the Bureau of Biological Survey; and the chief of that department, Mr. H. W. Henshaw, replied most fully and courteously as follows:

We have examined 665 stomachs of the common kingbird (bee-martin). Honeybees were found in 22; the total number of bees was 61, of which 51 were drones. The above percentage of drones is so large that we

think the harm done by eating the comparatively small number of workers is fully compensated by their destruction of the drones, most of which are superfluous. It is believed, therefore, that the destruction of the kingbird, on account of its bee-eating propensities would be a mistake, unless possibly an occasional individual should develop an abnormal appetite for bees. In such cases shooting would be the only remedy.

In addition to its other useful habits it should not be forgotten that the kingbird has a strong animosity against crows and hawks, and never hesitates to drive them from any locality it considers its own. This habit is well known, and the kingbird (martin) is, therefore, an asset on the farm it inhabits.

The above reply is so enlightening, so full, accurate, and detailed, that it leaves nothing to be said. Note that the figures show, in other words, that, say, 661 martins (which would be more than any one locality would be likely to have), would consume, all told, but *ten* worker bees at a single feeding-period; that is, 66 martins would consume but one worker on an average, at one feeding-period. Even if we were to assume that the martins fed ten times a day on bees, the 66 birds would eat but ten workers a day; and 66 martins would make a pretty good-sized aviary of these birds for any premises. The added information, that they eat robber-flies, is very hopeful.

Some time ago we asked whether the United States authorities could not give us some methods for destroying the robber and dragon flies. May not a way out lie along the lines here suggested? Four or five years ago our own apiary was badly pestered by the dragon-flies, or mosquito-hawks. So bad were they usually that queen-rearing operations were sadly hindered, often almost prevented altogether. About two out of every three mating virgins would be destroyed. About that time our neighbor, who loves birds and trees and flowers, set up many martin-houses on his place. These pretty little feathered friends are flying in ever-increasing numbers about our yard, tho not particularly near the bees. For the past three years we have had very little trouble with the robber-flies. We wonder if the two facts are coincidental and consequential, or merely accidental. We shall be interested in making more careful observations, and wish that our Florida friends especially (for the inquiry came first from Florida) would watch and note likewise. The crow and hawk chasing propensities may be of special interest to the combined apiarist and poultryman.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



It is with sincere regret that I read in Wesley Foster's note the sad misfortune to Mr. D. C. Polhemus. All of one's extracting combs for 2000 colonies of bees is "some loss," and would put the discouraging crimp in the career of most of us. The great loss of wax and labor involved is in itself considerable; but to have one's combs destroyed when the honey season is just at hand is equal to losing a honey crop besides. It was my good fortune to meet Mr. Polhemus and his wife, who spent the night with myself and family last season. He is one of the few very successful beekeepers, and has on his own initiative created a market for his honey that is of very great value to his future. When he has insufficient honey of his own production to supply his trade he goes into the market to get a supply.

BE CAREFUL BEFORE YOU SELECT A BREEDER.

In recent articles there has appeared a suggestion that tested queens were good enough for breeding purposes. It seems to me that in this there might be a pitfall to some beekeepers. I would warn all to refrain from breeding very extensively from a queen that has not had at least a summer's tryout in the honey season. A tested queen might prove to be the equal of any; but there is too much chance in requeening an entire apiary from a single queen of this kind, that she would not prove equal. For requeening an entire apiary, or perhaps several of them, a guaranteed queen from a reliable breeder should be used, and no other kind. A queen-breeder who has kept close record on a queen for a year is able to give you value for your money, and you run very little risk by paying a fancy price for such a queen. The greatest risk is in not being able to keep her laying a sufficient length of time to complete requeening operations before she is superseded, especially after traveling a long distance thru the mails.

DANGEROUS LEGISLATION.

There seems to be a feeling, tho I hope to no very great extent, that no honey from a diseased apiary should be allowed to be placed on the market. Wesley Foster, June 1, is the first to voice that opinion, and there are several in our own state who think the same. It is the belief of the writer that the

amount of good obtained would not be commensurate with the vast amount of harm that would result. If it were a matter of vast importance I might take another view of the situation, but I am of the opinion that there can but little harm come from the sale of honey from diseased apiaries, inasmuch as it is not injurious to the human race when eaten. But such a thought enacted into law might become a vicious matter in the hands of some men, even those who fostered the movement. In the first place we have entirely too many laws on bee-disease control as it is, and the entire lack of the proper kind of laws. In other words, we have a multitude of county, state, and district laws whose enforcement is done largely according to the individual fancy of the interpreter. What we need is a national law that will define the rights of the shipper so definitely that there can be no doubt of its meaning, or the rules laid down in its provisions, this law to supersede all others, and be *the* law of the future. Such a law would place us all on the same level; and if we had bees, queens, or honey to ship we could go at it in an intelligent manner, and with the thought we knew what we were about. With a law such as Mr. Foster recommends there would be a great hardship worked on the producer, for disease might be discovered at the close of the season, and that a man's apiary contained disease, while previous to that time there had been no trace of it visible; yet on the face of the fact his honey would have to be destroyed. The editor, on page 425, shows where such a law might work a hardship even on Mr. Foster's own state. I think it would be another case of whose ox was gored as to the individual leaning toward the law, and it is very probable that there would be a change of sentiment in some cases. But I am not ready to believe with Mr. Foster that such a law is nearer than we think. I am firmly of the opinion that such a law will never be passed unless "gumshoed" to final passage. Neither can I believe that Mr. Foster is anything but sincere in his views on the question; but I am as yet not ready to follow his idea. There is too great an economic waste in sight. [Our views are already given on page 425. We might add that a national law would be effective only on interstate business. It could have no jurisdiction within any one state. We would have to have state foul-brood laws as well.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York

VALUE OF DRONES.



"I am a beginner in beekeeping, but have read quite a little about apiculture. I note that you and other writers propose to allow each colony only a meager quantity of drone comb so that a greater amount of honey may be stored thru the gathering of a maximum number of workers being reared in all-worker comb except two or three inches square left to comfort the bees along the drone line. Now are you not mistaken here? I cannot believe that nature makes a mistake in providing drones. Are not these drones of value aside from their use for the fertilization of queens?"

Modern beekeeping has taken the bees out of their primitive state, where they were in isolated places, rarely more than one colony in any locality; and with colonies several miles apart there had to be enough drones in each colony to make it an almost absolute certainty that the young queen of this colony would surely find one in the few minutes to one-fourth hour that she was out in the air; otherwise she would be more liable to become the prey of some king-bird or other enemy which might abound in the place where the colony was located. Upon her life the very existence of the colony depends, as more often than otherwise there is no other means left for the continuance of reproduction in the colony. All beekeepers of any experience know what little chance there is for a colony whose queen is lost in her mating-flight, if a queen-cell or young brood is not given by the attentive apiarist.

Under our modern and more successful management these primitive conditions are changed. The colonies being massed or congregated together in large number, it is quite evident that the drones of a few colonies will serve the same purpose that they would have served where one-fourth of the comb covered by one colony was of the drone size of cell. It is, therefore, reasonable to suppose that it is useless to rear such a number of drones in each of the colonies congregated together in an apiary of from 20 to 200 colonies.

I have made several careful experiments by way of massing three or four Langstroth frames quite well filled with drone brood from different colonies, set apart as drone-rearers, in order that these drones might be kept for mating with queens after other inferior drones had been killed off at the end of the honey-flow, and have always

found that the drones from these three or four frames would consume about all of the honey brought in during the late honey-flow, while colonies of the same strength with only an inch or two of drone brood would store a surplus of from 50 to 100 lbs.

Our questioner thinks we are mistaken, but he gives us no proof save that he believes that nature makes no mistake. In answering his question in regard to drones being of value aside from the fertilization of queens, I will ask, "How can they be?" They do not work; they fill themselves with honey from the combs every time they fly from the hive; they are never seen out on the clover or any other bloom, and their rearing decreases the number of workers reared. Are not these facts sufficient to incite any beekeeper to prevent their production in numbers limited only by nature? It seems hardly necessary to theorize on the profit, and the approximate amount saved by their suppression. In a square inch of comb, approximately 55 workers may be reared, while the same space will furnish room for about 36 drones, figuring both sides of the comb. Thus in a square foot of comb where 5000 drones could be reared, we may rear approximately 8000 workers. Would it be unreasonable to say that the same amount of food will rear either brood, since it occupies the same space? And when they have emerged, we have a small swarm of workers instead of a heap of useless, bothersome, voracious feeders that do nothing but loaf, but are sure to come home to eat. After they are reared, to get rid of them drone-traps must be provided. And these are a nuisance to the worker bees and their keeper. Better not rear them at all. If we have taken pains to make sure of a sufficient number in one or two of our best drone-breeding colonies, why go upon some imaginary idea to permit their production in every colony? Try your best to get rid of the drone comb, and you will still find more inferior drones than you wish.

I am sure that every beginner will do well if he removes the largest patches of drone comb in all his hives, replacing the same with worker comb, except in such colonies as are set apart as breeders, as mentioned before. Of late it has seemed to me that the advantage of removing the drone combs and replacing them with worker comb, or foundation, is sufficiently apparent to make the matter a question of very serious consideration among practical beekeepers.

GENERAL CORRESPONDENCE

IS THE ISLE OF WIGHT DISEASE NEW?

BY C. E. BARTHOLOMEW,
Associate Professor of Apiculture, Iowa State College

The beekeeper need not become panic-stricken when a new(?) bee disease has been discovered. Most new diseases are simply a new name for something we have always had with us, and the so-called Isle of Wight disease is one of these. This disease has been confused by beekeepers with a great many other common ailments of the honeybee, as the great variety of symptoms demonstrates. This is due to a great extent to our meager knowledge of actual causes.

There are at least two and possibly more diseases distinguishable among the many symptoms ascribed to Isle of Wight disease. Bees suffering from paralysis and those suffering from dysentery are affected by two distinct diseases, both of which may be present at the same time in the same colony, but not necessarily so. There is present, in all bees examined that had died of malignant dysentery, a protozoan parasite that is not nosema, but is a near relative of it. This parasite in all cases was present in large numbers, and infests the digestive tract. In bees dying from the apparent effect of this parasite the alimentary tract was almost destroyed. In fact, it was simply rotten. The nosema is occasionally present in the spore stage in these cases, but it is extremely rare. In bees suffering from paralysis the nosema spores are common, and I have found a protozoan present in the muscles of the honeybee; but whether this is a stage of nosema, which I am inclined to believe it is, or some other parasite, I am not prepared to state. The present status of our knowledge of the life-histories of these parasites is very meager, and I can only predict that it will be a long time and require considerable study before the end is gained.

I feel safe in making the statement that malignant dysentery and paralysis are two distinct diseases, and that the malignant dysentery is caused by a protozoan parasite that is not *Nosema apis*. I call this malignant dysentery to distinguish it from the dysentery caused by long confinement and a heavy consumption of stores, and which is not necessarily fatal if the bees have an opportunity for flight.

The mortality from this dysentery is higher in the spring than any other season of the year, and a great deal of spring dwindling is due to it and not to the quality of the stores or many other of the attributed causes. This disease is at its worst at the beginning of brood-rearing in the spring. If the colony survives the rearing of the first brood and the appearance of the new nectar the disease is checked and may not be again apparent until the following spring. When prolonged periods of wet weather reduce the nectar flow and confine the bees to the hive the disease may make its reappearance to such an extent that the beekeeper may notice it. One reason why this parasite is apparently more virulent in the spring is that the longer life of the wintering bees gives a longer developing period for the parasite, while in the summer the sick bees die in the field while the developing brood make good the losses.

One of the principal symptoms of this disease is the brown liquid dropping, together with a heavy mortality. When examined under a high-power microscope these droppings will be seen to contain myriads of spores of a protozoan parasite.

There is nothing to add to the methods of treatment for this disease but to caution the beekeeper against leaving the daubed frames and honey for the young healthy bees to clean up, and thus become infected with the parasite. Remove all daubed frames. These may be washed and returned if not too much soiled, but do not leave it for the bees to do. All traces of droppings should be washed from the inside and outside of the hive as well as from the frames. Thin sugar syrup or thinned honey fed in outside feeders seems to have some influence in reducing the mortality.

Ames, Iowa.

[The writer of this article is Associate Professor of Apiculture at the Iowa State College located at Ames, Ia. He is, therefore, probably in possession of a complete equipment for making investigations.—Ed.]

NOSEMA VS. ISLE OF WIGHT DISEASE

BY GEO. W. BULLAMORE, F. R. M. S.

Dysentery may occur in normal bees as the result of conditions, or it may occur under normal conditions when the bee has a deranged digestive system. If the bees winter on good food, only a small proportion of the stocks affected with Isle of Wight will show dysentery. The prominence given to this symptom by Zander probably arose from the fact that his observations were first made when heavy losses were occurring in cold wet years. A sickly bee on the unripe or dark honey-dew stores that have to serve at such times would be very much subject to this trouble. Varieties of yeasts occur in dysentery, but I do not think there is one special kind responsible, tho all the cases in one apiary may show large numbers of the same kind. Yeasts, and molds which also cause fermentation, are certain to be present in honey-dews, for instance.

Both Swiss and German observers agree that nosema has no particular symptom except the death of the bees in large numbers. This is our view of Isle of Wight disease.

I would advise caution, therefore, as to harmlessness of nosema. In this country a small percentage of people die of pneumonia. The pneumonia germ is reported to be present in 60 per cent of the population. There are districts in India where the malarial parasite is present in the blood of 100 per cent of the native school children, yet a slight infection would bowl over a European. I have read of a village where all the inhabitants were carriers of the typhoid bacillus. It was the visitor who suffered from the effects of typhoid germs. As to nosema and Isle of Wight disease, I am personally committed to the statement that the Isle of Wight disease is associated with an intracellular parasite *believed to be* the young form of nosema. I have often picked up crawling bees in disease districts and found this young form in the stomach-walls. The life-history of a pathogenic protozoan such as nosema is necessarily conjecture, as we cannot watch the growth and development. We merely find the different stages and piece them together. When any

work of Rennie and Anderson is published I may send you an article on nosema and Isle of Wight disease. There is nothing fresh in what they are saying, apparently—no new facts.

Too much attention is given to nosema spores, I think. The poisons will be excreted by growing stages and not by such a resting form. A bee that gets thru the early stages may well appear normal, altho spore-laden. The suggestion has occurred to me that the difference between endemic and epidemic nosema may be in the arising under certain conditions of an infective *young* form. A few bees could pass them from the "blood" to the salivary glands and infect large numbers with the stomach trouble. When disease developed the blood-infected bees would have disappeared, and proof would be impossible. This suggestion is only one possibility, but I feel sure that I could dodge a lot of trouble if I could dodge nosema.

Albury, Herts, England.

[Altho wintering colonies on unripe honey or honey-dew may be, and often is, the cause of dysenteric trouble, this disorder, we are credibly informed, is more often than not present in cases of Isle of Wight disease when no question of unwholesome stores arises.

The gut content of the bee is normally alkaline; but with nosema infection it becomes acid, and this acid medium is a congenial breeding-ground for years; and these yeasts which are frequently present in enormous numbers are responsible for the dysentery. A more correct term for this disorder would, we think, be diarrhea, as the active agent does not cause any disintegration of the tissues of the gut.

There appears, however, to be at least one true dysentery of bees. Prof. C. E. Bartholomew, of the Iowa State College, has discovered in the faeces of dysenteric bees numerous sporocysts of a protozoan parasite whose life-history he has not yet fully worked out. The tissues of the gut of the infected bee are destroyed by this organism.—Ed.]

BEE PARALYSIS

BY MAJOR STALLARD

The first we knew here of bee paralysis was what we called Californian trembling disease. The bees got on the ground and could not fly, and their wings trem-

bled. It did not do any particular amount of harm, and we treated it by dashing a half-cup of salt water across the combs. This was about 25 years ago; and some

little time later its character changed, and the bees fell out of the hives and crawled about the ground with swollen bodies. It weakened the hives somewhat, but did not do any serious damage. The following season it attacked the bees on the Hunter River, 60 miles north of Sydney, and acted much the same as the Isle of Wight disease in England. The bees swelled up and tumbled out in heaps until there was a bucket of bees under some hives. It wiped Mr. Mich. Scobie's apiary of 150 hives right out all but 15; but there was a sequel to this, as the next season he bred up from the 15 to 150 again, and took 9 tons of honey. What price that, for good beekeeping!

Now it has assumed another form, or, rather, it has two forms. The bees will hop about the ground in one case, but they suddenly curl up and die in the other. In the former they are a little swollen—not much; but in the latter they are not swollen at all. I had been sitting under a tree having my lunch, when a bee laden with pollen fell on to the paper I was reading. It curled right up as tho it had the cramps, and died almost instantly. I have seen them do the same thing on the road many times, and have wondered if this was not partly the cause of the disappearing disease which we get here sometimes.

You, Mr. Editor, say that the bees get some sort of fungus, possibly with the pollen. Perhaps you are right, and that would account for the fact that one apiary will get it while another two miles away will be quite free. As I mentioned once before in GLEANINGS, I know of places here where

the bees get paralysis every year at certain seasons, while other apiaries only three miles away are healthy.

At the present moment I have one apiary pretty badly affected, while another not two miles away has not a trace. At the same time there is a fair flow of honey at the latter, and plenty of good pollen; whereas at the former there is hardly any honey-flow and hardly any pollen.

I have known this disease for many years, but it is so contradictory that I do not profess to know much about it. We do not pay very much attention to it anyway, as it is seldom that all the hives are affected, altho they once used to be; and if one hive persists in the symptoms the queen is either changed, or sometimes moving to another apiary will effect a cure. As you say, our bees have become largely immune to it.

Glenbrook, N. S. W., Australia.

[The writer of the foregoing is one of the best-known beekeepers in Australia. The reader who goes over these three articles will be able to make his own comparisons and determine whether he has any of the troubles among his own bees.]

By referring to an editorial elsewhere on this subject, it would appear that bee paralysis and Isle of Wight disease are not one and the same disease altho some of the symptoms are similar. The ordinary bee paralysis of the northern states is not serious, and usually does not affect more than one or two colonies. But there has been a peculiar kind of malady that struck apiaries in the Mississippi Valley and the Northwest, and particularly in Oregon that killed a good many bees.—ED.]

MANY CONDITIONS CONTROL THE DISTANCE BEES FLY

BY J. E. CRANE

P. C. Chadwick, p. 149, Feb. 15, reports that bees in southern California will go from five to seven miles for nectar and do very good business at storing honey, while Mr. Baldwin, of southern Florida, has told us that his bees would not go over a mile for nectar. Both are reliable men. The editor says the topography of the country has much to do with it—bees will fly further in a hilly country than in a level one; also the scent of nectar may be carried by the wind. All of this is true; but they have wind enough in Florida to carry the perfume of flowers a long distance. Doubtless it makes a difference whether the wind is blowing from the source of nectar toward the apiary or in the opposite direction.

Thirty or forty years ago we thought we knew just how far bees would fly. I drew circles around my yards on local maps to show just the territory a yard would cover. We know more about the subject now. Not only does the topography of a section of country and the direction of wind affect the flight of bees, but several other conditions have a bearing. I will first mention climate. The climate of California is dry and bracing; that of Florida is damp and hot. One tends to industry, the other to inactivity. Said a Californian to me in Florida a few years ago, "What kind of climate is this? In California we could walk six or seven miles and just enjoy it; but here in Florida if you walk two miles you are all in."

This explains it exactly. Doubtless bees feel the effect of climate and the indisposition to work as keenly as man; and why should they exert themselves to go a long distance when they have enough in their hives? We little realize how much muscular energy is required to carry a bee thru the air, especially when loaded, until we watch them drop at the entrance of the hive exhausted and panting for breath. It stands to reason, therefore, that bees will not go nearly as far in the climate of Florida as in a different climate, even if other conditions were the same.

Another condition affecting the flight of bees, especially here in the North, is the temperature of the air. I have been surprised to learn within the last few years the distance bees will fly in cool weather as compared with the distance they will fly in warm weather. A few years ago the weather was quite cool during fruit and dandelion bloom, and, as a result, the bees of almost every large apiary were in a starving condition before clover bloomed, while those in the small yards, with half a dozen colonies, had filled their hives and were swarming. This is easily explained. While there were flowers enough in the small area over which bees could fly for a few colonies, there were not enough for a large number. Had the weather been warm enough so bees could have flown as far as they do in July, I believe there would have been but little difference in the condition of large and small apiaries.

Another proof of the short distance bees will fly in cool weather is the barren fruit-trees or cranberry-bogs some distance from where there are bees. This is not so notice-

able when the weather is warm; but if cool we may learn the fact to our sorrow.

Another factor governing the distance bees fly is the strain or race. A friend was telling not long ago how, when he first Italianized his bees, he went two and a half miles from home to a piece of alsike clover to see if any of his Italian bees went that far. To his surprise he found them in great abundance. He said that another beekeeper living only one mile from the field of clover had black bees, yet he found fourteen times as many of his Italian bees to the same number of colonies, by actual count, as he did of the black bees, altho his Italian bees were two and a half times as far away. He said, further, his bees had no trouble in getting basswood honey when the trees were two to five miles from home. An inspector is not infrequently surprised at the stories told by old bee-hunters of the distance they have lined bees.

Altho there may be no way to prove it, it seems probable that bees do not fly nearly as far in cloudy weather as when the sun is shining, other things being the same. The same is doubtless true of showery weather. Bees do not like to be caught out when it rains; and yet if nectar is abundant they will work freely a short distance, even in the rain, if it is warm.

Thus we see there are many things that control the flight of bees in their search for nectar—the topography of the country, direction of the wind, climate, strain of bees, temperature, weather conditions, and it may be other conditions we have not yet come to recognize. How much the years, as they go by, are adding to our knowledge!

Middlebury, Vt.

HOW CAN I PREVENT SO MANY DRONES?

BY CHARLES E. DUSTMAN

There are three ways by which the number of drones may be restricted. They may be trapped, they may be destroyed before emerging from the cells, or only worker comb may be permitted in the brood-nest, excepting, of course, a few drone-cells which will be scattered thru the hive despite the efforts of the apiarist.

Some have argued that the apiarist is but little hurt by the production of many drones. In this they are much mistaken. It costs much to produce drones, and much to maintain them. To determine the cost of producing drones we must consider the amount of space they occupy, the amount of stores they consume in development, and

the amount of time they receive from attendant bees.

Sealed worker-brood combs are one inch thick; drone-brood combs are $1\frac{1}{4}$ inches thick. In the matter of thickness of comb the square foot of drone brood occupies 25 per cent more space. Worker brood occupies the combs but 21 days, whereas drone-brood occupies it 24 days, or $14\frac{2}{7}$ per cent longer; 125 per cent of space occupied $14\frac{2}{7}$ per cent longer is equal to $142\frac{6}{7}$ per cent of space occupied for the same length of time. This does not take into account the damage done by crowding the adjoining worker comb.

As to the amount of stores required to

produce a square foot of drone brood, it may be considered that it requires the same amount, bulk for bulk, as does worker brood; and that being 25 per cent larger in bulk they will require 25 per cent more stores. But this is not all, for worker larvæ feed for but six days, whereas drone brood feeds for $6\frac{1}{2}$ days, or $8\frac{1}{3}$ per cent longer. If a square foot of drone larvæ consumes 25 per cent more stores for $8\frac{1}{3}$ per cent longer time it consumes $35\frac{5}{12}$ per cent more stores.

The time required from the attendant bees to produce this square foot of drone brood probably corresponds exactly with the amount of stores consumed, which is $35\frac{5}{12}$ per cent more than is required to produce a square foot of worker brood.

To sum it up, it requires $42\frac{6}{7}$ per cent more space, $35\frac{5}{12}$ per cent more stores, and $35\frac{5}{12}$ per cent more time of attendant bees to produce a square foot of drone brood than it costs to produce the same amount of worker brood.

We believe that all drones other than those produced for necessary breeding purposes are entirely worthless. Our square foot of drone brood has yielded us 2304 worthless drones. This same amount of space and time and stores given to the production of worker brood would have produced 3120 workers, even if the space occupied were only $35\frac{5}{12}$ per cent more.

It may be argued that the presence of drones gives the colony a better working spirit; but we cannot believe that this is true until competent observers give it their support.

It is sometimes argued that drones are helpful in producing heat; but this argument will never carry any weight unless it can be shown that, when denied drone comb and provided with worker comb instead, they will refuse to produce an equal bulk of workers.

It is also sometimes argued that man cannot improve on nature, and that bees should be allowed to follow their inclinations in the matter of drone production, for they surely know what is good for them better than we do. This argument is inexcusable. It is strange indeed that a man

will constantly improve his stock and crops by selection and breeding, his fruit by budding, grafting, and pruning, and dispose of his surplus rams and cockerels, and then argue that it is best not to restrict the number of drones because "Nature herself provided them in large numbers, and nature surely knows best." If it is established that it is well to restrict the number of drones, then it only remains to determine the best method of accomplishing this.

We said they may be trapped, destroyed in the cells, or eliminated by supplying only worker comb. Restricting drones by trapping is a makeshift, and is unwise. Trapping saves nothing in the cost of production. It saves only the cost of maintenance. Indeed, it does not save even so much as that, for traps hinder greatly, especially if the colony be populous and the day hot.

Restricting by destroying the brood is probably worse; for after brood is sealed it requires no stores and little attention. But should it be destroyed the bees will promptly fill the cells with other thousands of hungry mouths, and consume another requisition of valuable stores.

Drone brood is capped in $9\frac{1}{2}$ days from the time the egg is laid. It emerges from the cells in 24 days. Now, just for argument's sake, let us say the apiarist who practices restricting by uncapping uncaps his drone brood every ten days. Then, allowing two days for the recleaning of the cells, he has put the bees to the expense of feeding twice as much stores, for they would have to carry two generations of brood entirely thru the food-consuming period, and in addition it would require the services of many more nurse bees than if one generation were allowed to occupy the cells the full 24 days.

We grant a very small portion of drone comb or cells here and there, for bees seem so determined to have a little that it is possible it is best to humor them to this extent. But beyond this we claim that the only method of restriction worthy of practice is the practice of removing from the brood-nest all drone comb, and replacing it with worker comb or foundation.

Des Moines, Iowa.

THE BITTER HONEY FROM BITTERWEED

BY J. L. LEATH

My apiary is located in the suburbs of the city on a hill gradually sloping east and southeast. The early sun warms the hives, and the bees begin to stir early, and I believe they build up better in the spring.

People pass my apiary every day; but it is seldom that a bee tries to sting. Stock come around, and wagons are driven near them, but they seem not to care.

After trying in my yard several breeds



J. L. Leath's apiary located in the outskirts of Corinth, Mississippi.

of bees I have decided on the three-banded Italians. My experience is that the three-banded have more good and fewer bad qualities than any others I have tried. I keep bees for pleasure and profit. I have worked bees for about 25 years, and I enjoy the work very much.

In the accompanying illustration can be seen small hives that hold four regular Langstroth frames. These I use in mating young queens. This is not a first-class honey location, but a good place to rear queens. Our honey-flow is a long-drawn-out one, beginning early in spring, and continu-

ing more or less until autumn. Bees seldom store a large surplus here. The largest from any one source is probably from bitterweed. I have seen them fill their supers and brood-chambers full of this bitter honey, and they mix it with the new honey the next spring, not consuming it all during the winter.

Our main sources of honey are fruit bloom, white clover (yielding for a short time); sweet clover, bitterweed, and aster. We have plenty of natural pollen-producing flowers almost all the season. My best yield this season from one colony was 120 pounds of fine extracted honey.

Corinth, Miss.

MY METHOD OF QUEEN-CELL PRODUCTION

Preparing the Cell-builders

BY W. H. CRAWFORD

Select a strong colony of bees in an eight-frame two-story hive, in a perfectly normal condition, and at a time when the weather is good and the flowers are yielding nectar, so as to encourage and stimulate the bees to such a degree as to produce perfect conditions as nearly as possible. See that the lower story contains eight full combs of

brood with a normal amount of honey and pollen. After making sure that the queen is in the lower story, put a queen-excluder between it and the upper story, and at the same time remove all combs from the upper story.

Three hours before starting cells, take seven combs of brood in all stages of de-

velopment from several different strong colonies, with adhering bees, being sure not to get a queen with them, and put them in the upper story, spacing three combs on each side of the hive normally, putting the seventh one in the center of the space left. This will give just the right space on each side of the center comb for a frame of prepared queen-cells. In less than an hour these spaces will be full of clustered bees, and hence an ideal condition will have been brought about as well as an ideal place for the reception of embryo queen-cells.

The mixing together of bees from different colonies, together with the fact that the brood in the seven combs put above a honey-board is decreasing every moment, produces the superseding impulse upon the bees in that part of the hive, and therefore gives the finishing touch to a perfect condition for the development of as good queen-cells as bees can produce. In my estimation a colony prepared as here described is near perfection. At times I have had 100 per cent of the cells given to such colonies accepted, abundantly fed, and completed; but, as a general rule, when twenty cells are given, about ninety per cent of them are completed. Where more than twenty cells are given at a time a less per cent are accepted; and where less than twenty are given, a greater per cent will be accepted and completed.

These cell-building colonies can be kept in the same ideal condition all thru the season by removing the cells three days after they are given to them; at the same time giving a fresh lot of prepared cells. Two full combs of brood with adhering bees should be given to the upper story once a week, removing the full combs of honey as fast as filled, so that no crowded condition will be noticed by the bees. In putting in empty combs, care should be taken never to put a fresh extracted comb, wet with honey, into the upper story of cell-building colonies; for fresh feed of any kind given in the super of such colonies means destruction to many unsealed cells; and all open cells are neglected for a time sufficient to damage them, while the bees are rushing about in an excited manner, taking care of the newly found sweet.

Every third day the cells are removed from cell-building colony No. 1, the jelly in one of them being used in preparing 20 new cells which are given in the place of the ones removed. If the bees of No. 1 are allowed to finish cells the superseding impulse wanes to some degree every time they do so, and hence the ideal condition is lost; but if they are not allowed to finish any

cells at all, it is an easy matter to keep the superseding disposition up to the maximum degree all thru the season.

By this method seventeen cells are secured from one colony of bees every three days without the loss of a pound of honey from any part of the apiary, and such cells are as good as can be produced by any known plan.

The frames of cells, with adhering bees, should be carefully taken out of cell-building colony No. 1, and placed in colony No. 2, where they are finished. Colony No. 2 is prepared the same as No. 1, except it has only three combs of brood in the upper story in all stages, the remaining four combs being partly filled with honey. It is a simple mathematical problem to find the number of cell-building colonies needed to supply the amount of cells required.

HOW THE CELLS ARE LOCATED.

The best device for holding queen-cells is like a division-board, $\frac{1}{2}$ inch thick by $3\frac{1}{2}$ wide. The bottom edge is dipped several times in melted beeswax so as to form a thick film of wax on it. The cell cups are molded on a cell-stick as per the Doolittle plan, and are fastened to wooden cell-blocks by pressing the base of the cell against one end of the block when taken from the melting wax the last time in forming it, then the cell and the block together are dipped into the melted wax again, thus securely fastening the cell to the block, and forming a film of wax all over the block. Then once more the end of the block is dipped in the wax so as to make a still thicker film of wax on it, making the cell and block ready for use.

The wooden cell-blocks are made of white pine or redwood, $\frac{1}{2}$ inch thick by $\frac{3}{4}$ inch long. There is no need of a cavity in them for the cells.

GRAFTING THE CELLS.

After the cells have been provided with royal jelly, transfer the larvæ 24 hours old with a tiny wooden brush made by chewing the point of a tooth-pick a little. With this kind of transferring-needle quite a bit of jelly can be dipped up with the little larvæ if they have been as abundantly fed as they should be. (I would not breed from a queen whose bees do not float the tiny larvæ in jelly.)

Next press the waxed end of the cell-blocks into the wax on the edge of the cell-board, giving them a little turn with the thumb and fore finger at the time, so as to fasten them securely there. Twenty cells can be put on one cell-board; but it is better to use two cell-boards, putting ten one inch apart centrally on each board, then quickly

put them in the spaces made ready to receive them in cell-building colony No. 1. This puts the cells near the center of the hive, and along the center of the combs as they should be.

The board described above is perfection in the way of a queen-cell frame, having no objectionable features whatever. Last summer I discovered the plan of waxing the edge of the cell-boards and cell-blocks as a means of fastening them together, making a cheaper and more satisfactory fastening

than any I have ever used. There is no danger whatever of cells coming loose if ordinary care is taken in putting them on, especially if the board is allowed to lie in the sun for five minutes just before. A cell-frame of this kind eliminates the objectionable features of having comb built in it, or having bees cluster in it in a way that makes it awkward for the queen-breeder to handle the cells and frame to the best advantage.

Reswell, N. M.

WHITE-CLOVER POLLEN

BY JOHN H. LOVELL

FORM OF THE POLLEN GRAINS.

The pollen grains, when examined under a high magnifying power, are shown to be oblong, cylindrical, rounded at each end, with three longitudinal slits or grooves on the sides, and the bands or spaces between the slits finely roughened with many shallow pits or depressions. A knowledge of the form of the pollen of white clover is very essential in order that it may be recognized with certainty when taken from the pollen-baskets of bees or from the hives; otherwise expressions of opinion become largely if not wholly guesswork. The color of the pollen in the anthers is yellow.

THE COLLECTION OF WHITE-CLOVER POLLEN BY BEES.

There are five petals. The upper petal, called the standard, is much the largest; the two lower partly cohere to form a sac called from its form a carina, or keel; the two lateral petals, called the alæ or wings, are attached to the keel, and act as levers to depress it. The stamens and pistil are completely enclosed in the keel, and ordinarily are not visible. A bee cannot collect pollen from white clover as it does from a rose, because there is none in sight, and it is not directly accessible. Bees never visit the flowers for the purpose of gathering pollen only, and in all my observations I have never seen a bee trying to obtain the pollen.

There are ten anthers, each of which produces a small amount of pollen; but it is yellow, not brown, as stated by Dr. Miller. The filaments (stems of the stamens) unite to form a tube, at the bottom of which the nectar is secreted. The superior stamen is, however, free, leaving two small openings at the base of the staminal tube thru which a bee may insert its tongue to obtain the nectar. It is manifest at a glance that the individual florets of a white-clover flower-

cluster are far too small to hold a honeybee. The bee clings with its legs to several flowers, and only its head rests on the flower from which it is sucking nectar. When a bee pushes its head beneath the standard, the keel and wings are forced downward, the anthers and stigma emerge, and, if the former have opened, a little pollen is deposited on the under or inner side of the head. In a bee before me the whole under side of its head is covered with a layer of moist pollen. If a pointed leadpencil is thrust into a mature flower, when it is withdrawn a little mass of pollen will be found on the under side. As soon as the bee moves to another flower, the elastic petals cause the anthers to return again within the keel. The collection of pollen is, therefore, an incidental result over which the bee has no control. While it is visiting white-clover flowers, more or less pollen is necessarily rubbed on the under side of the head; but a part of it is again rubbed off on the stigmas of the flowers subsequently visited, effecting cross-pollination, for the stigma stands slightly in advance of the anthers. A part of this pollen may be also transferred to the pollen-baskets, where it appears as little brown balls varying in size from a shot to an almost inappreciable amount. On many bees at work on white clover I could see no trace of pollen in the pollen-baskets, neither could I see any pollen on the thighs of many bees coming into the hive.

Several of these little brown balls were removed from bees captured on the flowers of white clover; the mass was comminuted, and portions of it examined with a high magnifying power. The form and structure of the grains, as described above, showed at once that it was white-clover pollen, altho it was slightly modified by the moisture. The little balls of pollen appear brown instead of yellow, the color of the pollen in the

anthers, because they are composed of a moist compact mass of grains which have been slowly collected and manipulated by the bees' legs.

WHITE-CLOVER POLLEN IN THE HIVES.

The white-clover honey-flow is now at its full height here, and the bees are so busy that I can stand by the side of the hive entrance and watch the incoming and outgoing bees without being attacked. The season has been a very wet one, and never before within memory have the white-clover blossoms been so abundant in the fields and along the roadsides. Here and there masses of white and red clover are mingled with purple vetch, and vie with the flower-gardens in attractiveness. On many of the home-coming bees I can see no pollen, while others bear little brown balls, evidently composed of white-clover pollen.

Three hives were opened, and the frames examined for pollen. In none of them was there a large quantity of pollen; indeed, with every desire to be perfectly fair I should say that they contained a small amount of pollen. From two of the frames of one of these hives I took samples of brown pollen which apparently might be from white clover. To my surprise the compound microscope showed neither of the

samples to consist of white-clover pollen, for the grains were round or globular, with a roughened surface. After the pollen has been packed in the frames, no matter what its source, it seems very generally to have a dark-brown appearance.

Compared with its value as a honey-plant, white clover is of little importance for pollen. The pollen cannot be gathered directly, and occurs in small quantities in individual flowers. Much that is rubbed off on the under side of a bee's head is again deposited on the stigmas of flowers visited later. In most localities, I believe that bees will be found to collect a comparatively small amount. But sometimes great results may come from small causes, as when great cliffs are sculptured by grains of sand blown against them thru the ages. Where white clover is very abundant, and its bloom whitens great areas, as has been pictured several times in GLEANINGS, and the flow lasts for a long time, perhaps the total amount of pollen brought in may be large; but it is exceedingly small compared with the quantity of nectar gathered. Even in these cases the pollen should be examined under the microscope before a conclusion is drawn.

Waldoboro, Me.

THE PAST SEASON IN NEW ZEALAND

BY E. G. WARD

The reader should remember that the seasons in New Zealand are just the opposite from ours—their summer coming during our winter.—ED.

The season of 1915—1916 in New Zealand was one of the most remarkable on record. Reports from the North Island indicate that the output has been rather below the average. The spring was cold, wet, and boisterous; and to keep the bees alive, feeding had to be resorted to as late as the middle of November in some districts.

The southernmost districts of the South Island, on the contrary, enjoyed one of the finest seasons on record for all agricultural pursuits. The beekeepers in most cases had splendid returns, and a late flow from cat-cars and thistles obviated any necessity of feeding for winter stores.

In Canterbury and North Otago (the central districts of the Dominion) the season was the worst ever experienced. The season of 1914—1915 was bad enough; but the one just ended was still worse. Many colonies died during the summer on account of the drouth. One man had only 60 left out of 300. Many artesian wells which had never been known to fail previously went dry, and cattle gave only about half their

usual quantity of milk. There was a severe frost on the morning of Nov. 22, which cut down clover just as it began to yield, and another on Dec. 30. Dec. 15 was the hottest day in eight years, and the following day nearly as bad. Very little extracting was done; and if feeding was neglected there will be a big percentage of empty hives next spring.

The rainfall for the last three years has been diminishing, and was only about half the normal for the year 1915.

Three successive dry winters brought matters to a climax, as the following figures for Christchurch (Canterbury Province) during recent years will show:

Year	Inches	Year	Inches
1902	28.780	1909	32.262
1903	18.998	1910	25.181
1904	33.351	1911	29.253
1905	28.440	1912	27.204
1906	29.496	1913	27.384
1907	19.508	1914	20.380
1908	25.417	1915	15.694

The rainfall during the last 6 months of 1915 was 6.015 inches. For

1911	15.633	1914	7.225
1912	12.697	1915	6.915
1913	15.505		

In contrast to the above, and to show that we have rain in some parts of New Zealand, the following figures for the town of Hokitika (on the west coast) may be of interest.

In 1915 rain fell on 220 days, totaling 134.05 inches. This is not unusual, as the following figures will show.

The fall in 1908 was 110.48 inches.

1909	121.06	1913	101.18
1910	132.69	1914	112.32
1911	104.89	1915	134.95
1912	115.62		

The heaviest rainfall on record for Hokitika was in 1878, when 154.44 inches was recorded; the lightest was in 1869, when there was *only* 88.21.

I am not aware that any bees are kept there; but if so, I should imagine they should never leave their umbrellas at home.

Christchurch, N. Z., May 9, 1916.

REMOVING A COLONY FROM AN AUSTRALIAN GUM-TREE

BY E. B. MACPHERSON.

Out in the "bush" one lovely day I found bees going in and out of a gum-tree. The owner dared me to get the bees and combs into a hive. I did not like the idea of cutting down such a fine old tree, so I borrowed a ladder that was just about long enough to enable me to reach the bees.

With a small ax I cut a hole where the bees were going in and out large enough for me to dig out the combs of brood. By the time I had the hole cut the bees were frightened enough to desert the brood and honey, hanging in a swarm above the combs between some rotten wood inside the tree.

I drew out the brood-combs one by one and let them fall into the tall grass and ferns below which broke the fall nicely. When all the combs were out I went down the ladder, fixed them into shallow frames, tying them in with strings to keep them in position. I thought I could get the bees out by carrying them down in handfuls, but could not get the queen in that way, and it was rather slow work anyhow, as most of them would keep flying back before I could get up again for another handful.

I had no smoker with me so I took a piece of old rotten wood from the hollow of the tree, made a fire on the ground in order to light the rotten wood, then carried it up where the bees were. They soon found they could not live with so much smoke, so they came out in a swarm and settled in the ferns below. I moved the hive over to them and every bee went in. The colony is doing well now.

Port Fairy, Vic., Aus.

[Nothing like succeeding under adverse circumstances! How many beekeepers would tackle a proposition like this, working on the "tip top" of a ladder and without a smoker? Our friend is not one to give up at the first obstacle that presents itself.—Ep.]



I tried putting the transferred combs in the hollow, thinking the bees would settle on them, but the plan did not work.



Whole valleys in eastern Tennessee and in North Carolina were submerged in the flood which destroyed thousands of colonies of bees.

TERRIBLE FLOOD IN SOUTHEASTERN UNITED STATES

BY L. E. WEBB

The terrific flood which has passed over North Carolina and eastern Tennessee has dealt a great blow to the bee industry. Every stream in western North Carolina was swollen to a width of forty to seventy-five feet, sweeping the valleys bare of houses, barns, crops, bees—everything.

Coming as it did at the beginning of the finest sourwood honey-flow in many years the flood cut off all chance of a late surplus from this source. The prospects were fine for three to five supers per colony when the crop was rained out and the bee business in the fertile valleys swept from existence.

The bees belonging to Farm Demonstrator Perkins, of Burke County, were drowned. The hives remained on their stands altho

covered with water. There was no way to save them, as Mr. Perkins' people were marooned in the second floor of their home for two days, unable to get to the hills. Mr. Perkins is an enthusiastic beeman as well as farm demonstrator. He has been in close touch with the government bee experts, and was giving the farmers some valuable points.

My apiary is situated in town far above the flooded area. The loss of the sourwood crop is serious, altho most colonies had made from one to two supers from the first bloom. I feel thankful for a strong apiary in a district where the business has suffered such great loss. Thousands of colonies have been swept away.

Morganton, N. C., July 21.

HEAVY LOSSES FROM THE FLOOD IN FLORIDA

BY J. J. WILDER

For thirty days it has rained almost continuously. Today, July 25, the clouds are broken a little, and the sun shines once more.

The great flood which came down the streams, spreading out wide over the country, sweeping down everything in its path,

has done much damage to beekeepers, and to all who happened to be in its path. They were safe from all previous floods; but this one, being many feet higher than the former record, swept hundreds of colonies of bees on with it as well as all the equipment. This was especially true along the great

Apalachicola River and its tributaries. This region is the heart of the great tupelo-gum belt from which thousands of barrels of this fine honey are shipped each season. Some beekeepers sustained a total loss of both bees and equipment, while many suffered partial losses. All told, thousands of dollars' damage have been done to the industry from which we can perhaps never fully recover.

I have not yet learned the names of all beekeepers who were heavy losers. Messrs. Tucker, Freeman, Lanier, Edwards, Aldermann, and Humes are reported among those

who lost heavily. I shall make a further report later on.

I lost only one apiary which I supposed was several feet above the high-water mark. We could not reach it in time to save it; but when the water goes down we hope to recover a part of the equipment, especially the supers and hives. However, as all of the combs were full of brood and honey this will be a complete loss.

One very fortunate feature is that most of the honey had been shipped out before the flood came. Otherwise the loss would have been much heavier.

Cordele, Ga.

SOME MISHAPS AND BLUNDERS OF LAST SEASON

BY J. L. BYER

Fire is a good servant, but a bad master. This proverb is familiar to all, but never so fully realized as when the time comes that we have actual experience with this dread element. Our apiaries are not pretty to look at, and in many ways our management is rather rough and slipshod, I am afraid, as compared with some of our very careful men; but one thing I have always been careful of is to warn all working in the yards, and to try to show by example as well, the necessity of being very careful to take no chances so far as danger from fire is concerned.

Up to September, 1915, we never had the slightest accident with smokers in any way, and in no other way did we have any experiences with fire where it was not wanted. Working at the home yard in September my son and I were going rapidly thru some 90 colonies taking out filled or partially filled combs of buckwheat honey. The season had been so poor that no filled supers were in evidence. We started in the morning in the northwest corner of the yard, and along toward noon we saw that, by stopping extracting and both taking in combs, all hives could be cleared before dinner, and then Edwin could extract the rest in the afternoon while I went to another apiary to do some necessary work. We finished in the southwest corner of the apiary, and left the yard exactly at 12 o'clock, going to the house for dinner, a walk of about 40 rods. Edwin left our place promptly at 1, and went up to the apiary, intending to finish the extracting. About the time he got there our telephone rang furiously; and on answering the same I was told to come at once as the beeyard was on fire. The bees are on our old homestead, while we now live a short distance from the old place. Needless

to say, I covered the distance from home to the apiary in record time; but I found on arrival that Edwin and the farmer on the place had isolated the fire to those hives burning when they arrived there after dinner. My! what a fire eight large hives filled with combs, bees, and honey do make! In some way that will never be explained, a spark from the smoker, we suppose, had ignited shavings or something in one of the packed hives, and the fire had, no doubt, been about ready to go nicely when we left the yard. The eight hives were alongside of one another in the southwest corner of the yard where we finished taking off the honey before dinner, and that explains how we left the yard without noticing the trouble; but it does not explain how we happened to do the mischief. Both of us had used the smoker by turns, so neither one could blame the other. That was one fortunate factor in the situation. It was a sorry sight indeed to see the bees of the eight powerful colonies going up in smoke; but I was glad that the fire was in the south corner of the yard instead of the north, as a strong north wind was blowing at the time. The colonies were nearly all heavy enough for winter, as they were of the Quinby dimensions. In addition they had most of the super combs on, as this particular lot of colonies had very little buckwheat honey in supers, and consequently the combs were not taken off.

Naturally we both felt like reproaching ourselves for carelessness in some way; but as we had taken all precautions, and used the smoker as at other times, we did not see how the accident could have been avoided. For fuel we were using chips from a wood-yard, our favorite variety for steady work. Years ago I used to put a handful of green grass on top of fuel when refilling; but of

late we have not done so because of the trouble caused by the juices from the grass gumming things up so. Possibly after this experience we may go back to the old practice. While the fire had the effect of making me doubly careful during the rest of the season in handling the smoker, it also had the disagreeable effect of causing me to worry when leaving an outyard after doing work there. No matter what pains I had taken, when leaving the thought would come to my mind, "What if a fire should start here where there is no one near the place?" If it did I guess they would simply have to burn; for after seeing how fire goes so rapidly thru hives, I am convinced that if a fire was started and let go it would clean out an entire apiary, even if hives were quite a long way apart. The only thing to do, no doubt, is to take all due precautions; and, in the absence of any system of insurance for bees that I know of, just trust to luck and stop worrying.

DON'T PUT YOUR NOSE INTO OTHER PEOPLE'S BUSINESS.

The apiary at Altona is situated in an orchard, a rail fence separating the yard from the rest of the ground, occupied by apple-trees. The bees at this place are wintered in rough cases, some two in a case and others singly. When packing them early in November I left one colony at one side of the yard, calculating to carry it about 20 feet to another place to go in with a colony alone on a stand that had a two-hive case. About the latter end of the month I went out to the yard to do this work after being away from there for two weeks or more. I might say that the farmer on whose place the bees are is very careful; but being busy he had not been in the beeyard for some time. Arriving there and going into the yard my first thought was that there had been an earthquake in the vicinity. About half a dozen of the cases for two hives were shoved off the stands, and three of the single-hive cases were actually turned upside down. The single hive left to be moved was the worst sufferer. It had a loose bottom and loose frames, and it was turned upside down, and the combs jammed together more or less, the bottom being off the hive and the bees exposed to the weather, which was below freezing at the time, and had been so for three or four days. First of all I righted the cases that were turned upside down, and then went for the smoker to do the best I could with the wreck of the colony in the single hive. The case was all ready, and I turned the hive aright, hastily arranging the combs as best I could, during which operation the bees

flew out more or less. I noticed that many were crushed. The hive was then placed in the packing-case with the expectation that they would die anyway; but I thought I would give them a chance to end up in a half-decent way. Jan. 25 I was at the yard and they appeared all right, much to my surprise; but I thought the queen might have been killed. The packed cases when righted appeared to be little the worse, in so far as the bees were concerned. The clusters were quiet, and the combs had not been loosened at all—score one for narrow top-bars in a locality where propolis is abundant.

Now as to the cause of all this trouble. Investigation showed that a long-snouted old sow had broken a rail and got into the apiary. The pigs had free access to the other half of the orchard to pick up fallen apples after picking had been done. Some apples had rolled under the packing-cases; and in order to get at them she had put her nose under and given the hives a hoist. That explains the damage but does not help matters very much. In this case, again, it was just another thing that *might have been* avoided, but under ordinary circumstances is likely to happen once in a while in running out-apiaries.

"THEY" SAID SO—AND THEY WERE RIGHT.

Years ago I read that boiled honey would kill bees if given them for winter stores. Repeatedly I have told others this same thing because some one had told me; but I never had any actual experience in the matter. Last September when starting to feed bees at home yard I came across about 40 pounds of honey I had taken from cappings the winter before. In the spring I had diluted some of this with water and boiled it as a precaution before feeding a few needy colonies in May. I never fed stuff that was better for brood-rearing than this boiled honey, no doubt with a lot of pollen in it. Examining the colonies so as to find the amount of feeding to do, I came across a Danzenbaker colony that had been run for extracted honey; and when supers were off the colony was almost destitute of honey. Now, here was a good chance surely to find out *for sure* whether boiled honey would kill bees if given them to winter on. In a foolhardy moment I placed a large Miller feeder on this hive and gave the bees all they would take of this boiled mixture. About Christmas I was in the yard and noticed about a pint of dead bees dragged out in front of this hive while not another colony of the 80 was in a like condition. I raked them away and listened, and there were live bees in the hive yet; but I was

beginning to think that the text-books were all right. Jan. 25 was quite mild, and a few bees were flying at most of the hives; but I noticed the boiled-honey colony was very quiet, with no bees dead or alive around the entrance. A tap on the hive brought no response, and so, sure enough, they were gone. Taking off the packing I found all the bees of this strong colony were dead, and lying all over the bottom of the hive. It did not look like an ordinary case of dysentery, but the bees' bodies were distended a great deal, and the cappings

had been opened all over the combs just as tho the poor things were trying to get better food than was available. I do not know how long they had been dead, but it looked as tho this strong colony without a flight had not been able to live more than three months at the most on the only diet available. Yes, I am now fully convinced that boiled honey will kill bees in the winter. If *you* do not believe it, try for yourself, and don't risk more than one colony in the experiment.

Markham, Ont., Can.

AS GLIMPSED THRU THE CAMERA

Some Experiments with Portable Extracting Outfits

BY H. H. ROOT

In former years we have nearly always extracted all of our honey at the home yard in a convenient extracting-room, hauling in the combs from our six or seven yards around Medina. This year, however, our extracting-room was being used for other purposes; and while we had another place that we could have used we decided to assemble a portable outfit that we could haul from yard to yard. At most of the yards we have small buildings in which to put the outfit; but at one of the yards, a new one, there was no building. As honey was coming in rapidly, however, we decided to ex-

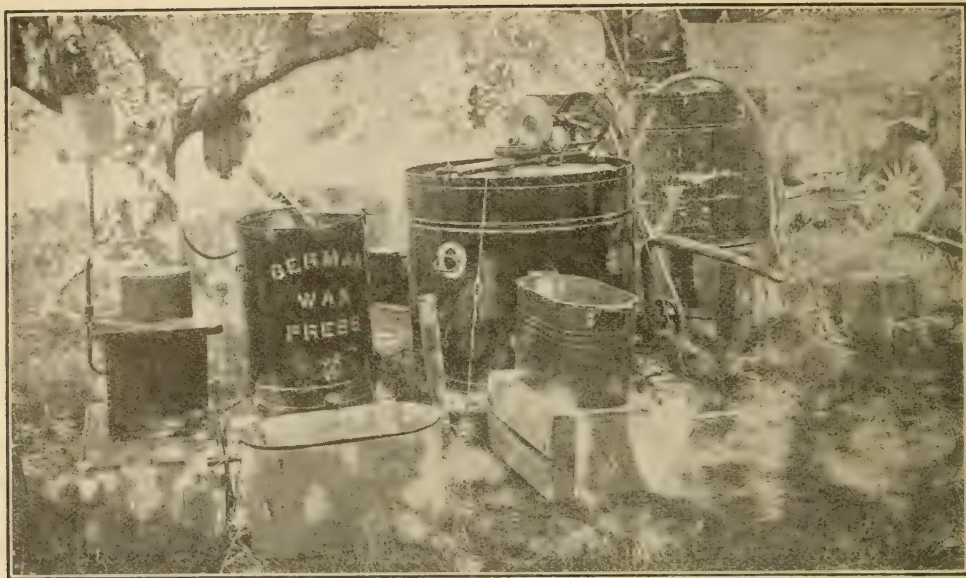
tract right out of doors in an orchard, knowing that the bees would not bother very much.

Extracting out of doors is ordinarily bad practice, even during a honey-flow, for in most localities the weather cannot be relied upon absolutely, and a sudden shower is not particularly good for an extracting-outfit. Furthermore, conditions of the weather or atmosphere may change enough to stop the honey-flow, and then it does not take long for the bees to discover what has been going on right under their noses.

With a portable outfit, especially a power



The platform with extractor, engine, tank, wheelbarrow, and the whole outfit, in fact, loaded on the truck.

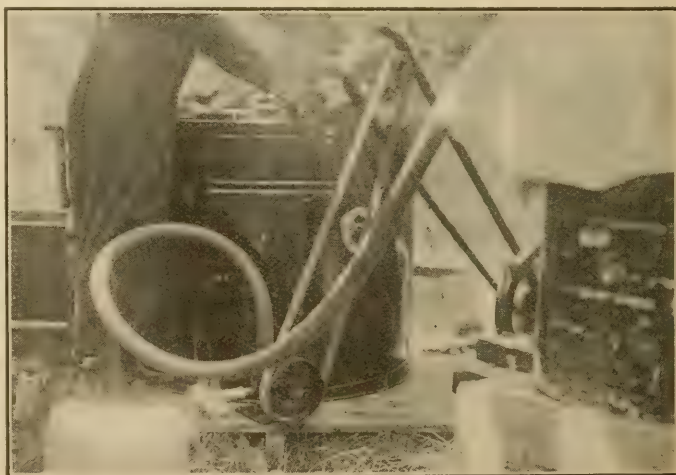


A few minutes later. Platform slid off on the ground, staked down, engine bolted in place and all ready to extract.

outfit, much time is usually lost in bolting the apparatus down to the floor. It takes time to line up belts and make everything secure so that it runs just right. If one uses a screened wagon the outfit, of course, is left on the wagon all the time, and no time is lost; but if the outfit is put inside of buildings and moved from one yard to another it takes a good deal of expensive time to get it set up ready for work.

Our truck body is just 44 inches wide. We built a stout floor, or platform, just 43 inches wide, long enough to hold a six-frame power extractor with engine and pump. Everything was marked so that it took only about fifteen minutes after reaching the yard to get the platform inside the building and the outfit set up. The pump, of course, does not need to be removed ordinarily, altho it can be quickly unbolted from its base if necessary. It is a little inconvenient to have to step up five inches on to this platform; but when one becomes accustomed to it, it is really no handicap.

This year, for the first time, we used a hose to convey the honey from the pump to the tank. Heretofore we have always used a galvanized pipe. A hose is a little more convenient for a portable outfit, for it may be quickly disconnected and coiled up inside the extractor so that there is no drip nor lost time in draining out pipes. If the honey is to be elevated only four or five feet, a hose of small diameter may be used; but it is much better, in order to avoid friction, to use a hose the full diameter of the



Large hose carrying the honey from the pump to the tank. A hose is all right, but costs too much.

exhaust port of the pump. Even with the $\frac{3}{4}$ -inch pump the exhaust port is for a one-inch pipe, and a hose large enough to slip over a one-inch pipe is pretty expensive—so expensive, in fact, that it seems to me that a galvanized pipe is more practical. The pipe, moreover, will last forever, while the hose, unless very carefully handled, will deteriorate rapidly.

This year, for the first time, we tried uncapping into a wax-press, intending to press the honey out of the cappings when the basket was full, then set that one away to be melted up later, an empty basket meanwhile being put in the press.



Uncapping into a wax-press. We made the mistake of not laying a cloth on the cappings under the plunger when we applied the pressure, and consequently the plunger stuck fast.



A strong colony with three to five supers is "some colony." It is bad practice to confine the bees merely to the brood-chamber when the supers are taken off. Empty combs should be provided at once, and if the supers are freed from bees by means of a bee-escape, a super of empty combs should be placed under the escape unless the honey-flow is entirely over.

The plan works very well for one uncapper; but we found that it is absolutely necessary to have the cappings in a sack or else to put a piece of cheese-cloth or other soft material under the plunger of the press, otherwise it is impossible to remove the

plunger after the pressure is applied. The cappings are forced into the perforations by the pressure, most effectually locking plunger, cappings, and perforated basket together in one solid mass.

NURSE BEES AS THE CAUSE OF SWARMING

BY WILLIAM BEUCUS

I was surprised indeed to read in Mr. Chalon Fowls' article, July 15, 1915, the following words: "A natural swarm is made up of bees old enough to fly; but a shaken swarm consists of bees of all ages—nurse bees, cell-builders, all sorts." In this locality, bees of all ages join the swarm, excepting only those weak downy things that have not been out of their cells more than a few minutes, or, at the most, a few hours. And even these may be seen in considerable numbers crawling about in the grass. The only reason they did not join the swarm was because they could not fly. The nurse bees and cell-builders can fly, and they join the swarm in large numbers. What is the function or what are the functions of the clouds of young bees which fly at the entrances and fill the air during the brightest hours of sunshiny days? The functions of those bees are nursing, cell-building, comb-building, and evaporation of honey. These bees do not go to the fields; but when a swarm issues they join in the exodus. If the presence of too many nurse bees in proportion to the amount of unsealed brood is the cause of cell-building, queen-cells should invariably appear shortly after a prime swarm is hived.

The theory that living things lower than man are merely automatons is still entertained by the majority of human beings, altho it should long ago have been discarded. It seems to be assumed by many bee-keepers that bees do not deliberately build queen-cells, but that they build them only because there is in the stomachs of nurse bees an accumulation of larval food. According to this theory, bees are only machines. They do not consciously determine to build queen-cells, but merely proceed to do so mechanically. This seems to be the view held by Mr. Fowls. To me, this seems entirely wrong.

All higher forms of life, including bees, associate ideas—they think. There is no difference in kind between the mind of a Shakespeare and that of a newsboy—it is only a difference, and there is no difference in kind between the mind of man and that of a bee—it is still one of degree. How

could it be otherwise? In all living things, life is made up of internal changes which occur in answer to external changes. That these internal changes may be properly adjusted to the ever varying conditions outside of the body, it is necessary that the internal changes be in some way directed. That direction is merely an act of mind—a deliberate act. The mind of a man moves in a large circle, and directs the adjustment to numerous involved conditions. The mind of a bee moves in a small circle, and directs the adjustment to less numerous and less involved conditions.

It is quite remarkable to me that even the most careless observer can go thru a single season without noticing many proofs that bees are guided by intelligence, and are not merely the creatures of instinct—automatism. Only yesterday I observed a colony the bees of which were working but were not carrying in pollen, while the colony two inches to the left was carrying in immense loads. I immediately concluded that the colony first mentioned was queenless and broodless, and that the bees were not carrying in pollen because they were aware that it was not needed. An examination revealed the queenless and broodless condition expected.*

If the building of queen-cells and absconding, spoken of by Mr. Fowls, were due to the presence, in the nurse bees, of an oversupply of larval food, how could we ever manage to get rid of foul brood—particularly when shaking twice? In this case every bee goes with the swarm. We should naturally expect, from the immense overdose of larval food present, a large batch of queen-cells started, and then desertion.

Here is what happens in this locality when the shaken-swarm plan is practiced: If shaken on to starters, almost certain absconding; if shaken on to full sheets, very much less absconding; if shaken on to a set of clean, sweet-smelling worker combs, no absconding whatever. If absconding, in either artificial or natural swarming, is due

* Queenless and broodless bees *do* bring in pollen, however, and sometimes the combs are even "pollen-clogged"—Ed.

to the presence of too much larval food in the stomachs of nurse bees, there would necessarily have to be desertion with the accompanying building of queen-cells, no matter if the swarm were hived or shaken on to starters, full sheets, or full combs. The statement that too much larval food in nurse bees is the cause of queen-cell construction, and therefore of absconding or swarming, is not a full truth but an adumbration of the truth. It is a minor truth forming part of a major truth. This major truth is that, whenever there is either swarming or that which some prefer to distinguish as absconding, there is a restriction of function. In shaking or hiving a swarm on to starters, the functions of fielders of nurse bees and queen are all restricted. In shaking on to full sheets, the restriction of function is relatively short. In shaking on to full combs, the restriction is too brief to be a serious obstruction to the immediate performance of the work of life.

Since coming to the conclusion that restriction of function is the cause of swarming, I have got into the habit of asking myself, after treating colonies, "Have I removed every obstacle to the performance of function? Is there anything which stands in the way of raising brood and storing

honey?" At first I thought that merely giving a full set of combs was all that was necessary. Here are some of the minor conditions which, later, were observed as occasional causes in the restriction of functions: A new comb which had been partly drawn out in a top story the year before, and then, in the fall, had been more or less discolored by deposits of propolis; a new comb with very deep cells; moldy combs; extracting-combs which had been uncapped with the knife the year before. Some queens will refuse to lay in combs like the above, and some bees will refuse to prepare them properly. When a comb is uncapped, the mouths of the cells are hexagonal; but the mouths of cells ready for the queen are round. Several cases have come to my notice where the queens refused to lay in such combs, and where the workers refused to remodel the mouths of the cells. In all of the above cases, the effect was the same as tho dummies had been inserted. There was a restriction of egg-laying and consequent swarming.

Failing to observe these occasional minor causes, it is not at all hard to convince oneself that giving plenty of room will fail to prevent swarming.

Cadott, Wis.

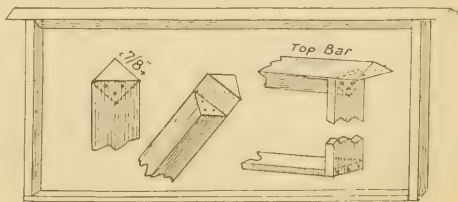
STRAIGHT COMBS WITHOUT FOUNDATION

BY H. H. KOLLOSTER

I indorse Mr. E. E. Colien's article on page 279, April 1, in regard to home-made hives. It is about time for some one to defend the principle of home-made hives. It is a common thing for our best beemen to advise against home-made hives; and the average uninformed beekeeper, unable to buy factory-made hives, stays in the old rut and keeps his bees in an old box, thinking that there is something mysterious about a modern hive. This is a mistake. Factory-made hives are improperly made for all except the professional beekeeper. I can use them if I can afford to buy foundation; but if I cannot, then they are a nuisance, unless all the frames are filled with drawn comb.

I make my own hives. If I have no foundation, and a swarm is in the trees, I just take my home-made hive, fill it with empty frames, and put my swarm into it and let the bees go to work. If I don't see them again for two or three weeks I know that I have straight movable combs. I do not say that they are perfect, for it takes a good beeman with lots of experience to get good perfect combs; but in my home-

made hives and frames the combs are straight and the comb is built in the center of the frame. This cannot be done with the factory hives, for they are made so that foundation must be used.



The construction of my frame is an old idea. A $\frac{7}{8}$ -square bar is used, set into the hive, corner down. The ends are cut out on the bottom side to the center of the bar, and the side pieces are nailed on to the shoulder thus formed. The ends of the bar rest in the rabbet in the usual manner. I use $\frac{7}{8}$ square, but I plane down the two sides and top, as that size is a little too thick; but this size is kept in stock at the lumber yards, therefore is handier to get.

Foundation may be used, and the frames

should always be wired. If I use foundation, I lay it on the wires and press the edge of the foundation fast to the bar so that it centers at the corner, then run a hot soldering-iron over it. So fastened, the sheet never comes loose. If I have no foundation I just fill a hive with empty frames and put in the bees. Spacing is the main point to watch in that case; but should they run off the track I straighten them out a bit and the bees do the rest. Bees always

fasten their comb to the corner of a bar, no matter whether the bar is with the flat surface down or with the corner down.

Thirty years ago I found this bar in use in Ezra Catlett's apiary at Goleta, Cal. Later I found all the other apiaries thereabout used the same kind of frame, so I concluded that all frames were made that way until I saw the factory-made frame. I then discovered why foundation is not only necessary but indispensable.

Palatka, Fla.

REQUEENING AFTER TREATING BEE DISEASES

BY JOHN L. BYARD

My yard being one of the first in Massachusetts to be condemned and quarantined for American foul brood, together with all others in the town of Southboro, it gave me a chance to become early familiar with the disease. After treating my yard I assisted in treating those of my neighbors.

Before inspection in July I had requeened several of my colonies in June. My yard was quarantined, promptly treated, and then I requeened the rest of the colonies the last of August. Those colonies requeened in August far outstripped the others, wintered in perfect condition, and gave a good crop the following season. Those requeened in June before treatment barely pulled thru the winter, and in two colonies the following season I found slight evidence of American foul brood.

In comparison, those colonies in the town of Southboro, near my yard, but which were treated in the usual way without requeening the following year in nearly all instances showed disease. I cannot say that at that time I considered requeening as an essential part of the process of treatment; but with years of experience, both as a beekeeper and as an inspector I am now aware of its importance in combatting American foul brood. I am not prepared to say that the queen transmits the disease; but it is reasonable to presume in egg-laying she has thrust

her abdomen into thousands of cells containing the scales of foul brood. It is beyond me to say that in so doing she is able to transfer the disease organisms upon her abdomen. Yet there are far more significant meanings to the procedure.

First, the presence of infection at once condemns, in my mind, the worth of the queen heading that colony, especially if the disease seems to have taken a firm grip.

Second, from experience, as is shown above, the shaking treatment does not appear to promote the efficiency of the queen. On the contrary, be it the abrupt stoppage of egg-laying, the rough handling in the shaking process, or the confinement, or whatnot, nearly all queens appear to be impaired, lose their prolificness, become "slow to build up," following the shaking treatment.

Third, on general principles new vigor may be induced in a colony by introducing a strong young queen.

Fourth, while there may be some uncertainty as to the transmissibility of the organisms of American foul brood, either in the egg or in the depositing of the egg, the facts of experience show that reoccurrence of this disease, after a most painstaking method of treatment as usually recommended, is accompanied by the old queen from the formerly diseased colony.

SWARM PREVENTION IN COMB-HONEY APIARIES

BY C. F. BENDER

I have run two outyards for comb honey for eight years, and expect to continue. In April the bees which have been wintered at home in the cellar are returned to the outyards. The main reason for returning them so early is to catch the honey from dande-

lion and fruit bloom, which helps to build up the colonies for the clover flow. Another reason is that the hives are less populous at this time, so there is less danger of smothering bees in moving.

The only difficulty in running out-apiaries

for comb honey is the prevention of swarming. All queens are clipped at the beginning of the season. When the flow from clover begins, we go thru all colonies every ten days, destroying queen-cells wherever they are started. A record is kept on the hive-cover, and when cells are started the second time in any hive they are destroyed and the queen removed also. Ten days later the queen-cells are destroyed again and a young queen is given in a candied cage.

I have never succeeded in entirely preventing swarms; but by careful work they may be reduced to about two per cent. As I do not always do my work carefully, about five per cent swarm and get away. A part of the loss is caused by taking chances, when the few swarms saved would not pay for the labor of going thru every hive. A part of it also comes from the natural contrariness of some bees. Some colonies will supersede their queen and swarm earlier than I expected, tho I aim to prevent this by having young queens in all the hives at the outyards. Some colonies may swarm at the end of the flow, but the loss is then small, and is, perhaps, balanced by the young queen, which is reared free of charge.

Twice I have had a colony swarm without a sign of queen, queen-cell, or brood in the hive, as far as the closest search could discover. They had been held back, when they were determined to swarm, by removing the queen, killing all queen-cells nine days later, and again killing cells on the fourteenth day. They swarmed promptly when clipped queens were given them, sulked for a week after the queens were taken away, then

swarmed without queens. My guess is that they had laying workers, tho no brood of any kind was found in the hive. Both swarms hung in cluster until they died from exposure, without either leaving or returning to the hive. Such cases are very rare.

Ninety-five per cent of the colonies may be kept from swarming by the method outlined above. The queens given should always be clipped before caging. Rarely a colony will sulk under this treatment, cluster out, and refuse to work. In such cases I usually shake them on combs or full sheets, giving a queen at the same time.

In the matter of swarming, there is a difference in seasons that is not accounted for by the difference in the honey-flow. In 1913 I got a heavy crop with little labor. Not one colony in ten even started cells. Last year, with a smaller yield, the bees swarmed from dandelion until frost, even coming out in the rain. Taking seasons as they come, 150 colonies will keep one man busy if all are run for comb honey on the non-swarming plan.

In running outyards after this method, several palliatives may be used that will save much labor. Large entrances should be given, and plenty of super room. Ten-frame hives swarm a little less than eight-frame, but are not so handy for moving. Young queens reared the previous fall will prevent much of the swarming. Dr. Miller tells us that queens of the present season's rearing will not swarm for him. They sometimes swarm here on a fall flow, but not usually.

Newman, Ill.

POSSIBILITIES ALONG THE ST. JOHN'S RIVER, FLORIDA

BY F. M. BALDWIN

Drawn by that tie that so strongly binds the members of our fraternity, I went yesterday, in response to Mr. C. H. Clute's repeated invitations, to Sanford, Fla. I found the flora and conditions so attractive that I cannot resist the desire to tell of what I saw.

Early bloom fills the hives with bees and brood. The first week in March finds them ready for orange, wild cherry, oak, and elder. Before the citrus bloom can close, gallberry, to judge by the indications, will be yielding nectar, and then will come saw palmetto overlapping that flow. There are many acres of all the above within reach of the yard we examined.

Mexican clover, ditney, bay, cabbage

palmetto, and linn are also on every side. Some of these should give a summer flow, even tho the most of them fail. Any two or even one of them would be profitable. From the river dock we could see large stretches of low lands that will be later filled with smartweed and wild sunflower. The variety of goldenrod that is abundant in the Manatee country is much in evidence. In the swamps that are near at hand is a different variety, a much better yielder of nectar. From it the Rev. Mr. Blaisdale used to get a very heavy crop of fall honey in the Apopka Swamp. The latitude and physical conditions are the same at Sanford. One can see no reason why there should be a difference in output.

Much has been written along the line of any place being good enough for bees—the roof of a store building in a city or a back yard in a town. There is much on that side of it; but is it not more desirable to find the finest locations, and get all we can out of them? If there is in one's section a place that can be reached without too much cost where the returns ought to be better, let's be hunting it up. Why not? Florida has a lot of poor bee pasture, and some that is good. Then we have a little that is extra good. Is that not the case in other states also? Why not recognize it, and take advantage of it? At any rate, that is why I am writing about the things I saw yesterday. I hope I'll at least set some one to thinking.

The problem at Sanford is the same that it is in any field. Not all the best flora can be reached from any one spot. Can one better conditions by trying to reach different points at different stages of the honey-flow? I could conceive a place where there would be a big flow from white clover, but little fruit bloom upon which to build up and get ready for it. In that case would it be possible to find a location near by that would combine fruit bloom and clover? I got a fine yield of white honey of the very best quality from clover in western Illinois in 1886. A dry spell in July put an end to it. But it was followed by a fine crop of golden honey from Spanish needle in Au-

gust. Many who were not far away went out of business for that year when the dry spell struck them in July. If they had been on the job they would have been making provisions to share in the August flow. Last summer I moved my bees from Palmetto to Terra Ceia Island. I wanted the flow from black mangrove, and got it. The move much more than paid for itself. If the bees had stayed at their spring location I would have lost this.

The fine flora of the St. John's basin is not all accessible from any one location. Mr. Clute has bought a boat with which to practice migratory beekeeping, but he does not expect to have to move more than a few miles at any one time. For instance, the yard that we examined yesterday is not near willow from which usually a super can be gathered in January and February. The idea is to move to the willow early in the season, build up, and gather surplus. As soon as the oranges begin to show, take the yard and its denizens to a good grove section. If gallberry and saw palmetto are plentiful in that neighborhood, let the hives alone until smartweed and wild sunflower make it clear that another move is in order. This may not pay. It may cost more than it comes to. But it now looks good to me, and I am glad Mr. Clute is about to try it out.

Wildwood, Fla.

INTRODUCING LAYING QUEENS IN A QUEEN-CELL

BY KENNETH HAWKINS

Make the colony queenless toward evening, preferably giving the bees a little time to know they are without a queen. Make an artificial queen-cell as in "Scientific Queen-rearing," by Doolittle, but make it half an inch longer than an ordinary queen, with quite heavy side walls. After dipping the last time, cut off the point with a sharp knife and dip once more, leaving a thin point. Place the queen in this head first, and pinch the cell tightly shut behind her, and staple on a frame in the center of the cluster of the colony previously made queenless. Close the hive and leave it alone for 24 hours. Queens laying before being put into the cell will continue that night. Mated queens from the mails and virgins will invariably be successfully introduced. It has been suggested that the queen might suffocate before getting out. Some of my losses not otherwise explainable might have been due to that. I advise always pricking

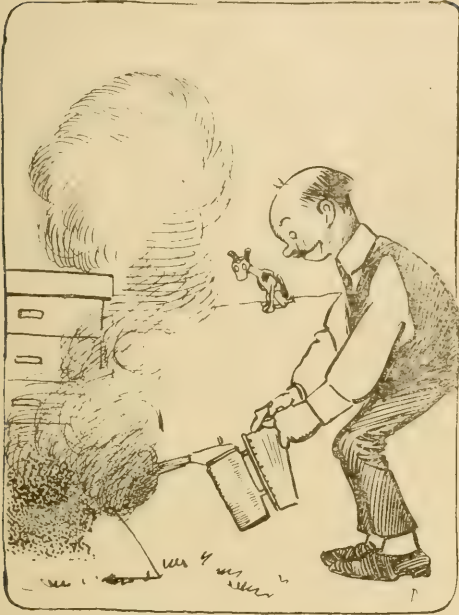
a few holes in the side walls of the cell with a pin.

Successful introduction of queens depends not at all on odor, but entirely on the attitude of the queen toward the bees, and not *vice versa*. That explains the Simmons fasting method, and probably the Miller smoke method, which frightens both bees and queen alike; and only when they recover simultaneously does the latter method work. I have not experimented enough to know my real percentage of failure.

Plainfield, Ill.

[Plans for introducing queens are legion. We shall have to give our correspondent credit, however, for having proposed a method that is at least unique. At first we feared that the queen might suffocate or starve before being released by the bees, but the pin-holes doubtless will overcome the latter danger.—ED.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

Uncle Andy Sweetclover says these loafers that hang on the outside of the hive when honey is comin' in remind him of a colony he once bought from a stranger. Smoke wouldn't budge them. They seemed to like it. Come to find out, the bees had come from Pittsburg.

THE HUMMING OF BEES.

BY GRACE ALLEN

When the white cherry bloom with its breath
of perfume

Made fairyland here in the tree,
How the bees all would come and hover and hum

In riotous ecstasy!
And then when I heard, I was stirred—was stirred

By the mood that eternally seems,
In blossoming trees that are haunted by bees,
To open the doors of dreams,
The bonnie bright doors of dreams.

But now it has died, the tree of my pride—
Its worn boughs are ugly and dead;
The spring, too, has gone and the midsummer dawn,

Half-clouded, hangs hot overhead.
But the cherry-trees die and Aprils drift by,
And shadows come blurring the gleams,
Yet forever to me shall the hum of a bee
Swing open the doors of dreams,
The bonnie bright doors of dreams.

What in the World was She Doing?

A few days ago, while looking thru a nucleus I happened to be just in time to see the queen push the cap of the cell open and look out for about a second, when she went back again. I lifted the cap of the cell, and she came out. I watched her closely to see what she would do, and was greatly surprised to see her put her abdomen into a worker cell as far as it would go, and keep it there for a few seconds, just as a laying queen would do. When she came out I looked closely into the cell, but could see no sign of anything. Next day I looked at that hive again; and after looking over the combs several times without seeing the queen I was about to close the hive when I saw the tip of a bee's abdomen sticking out of a worker-cell. But there was something unusual about it, so I touched it with my finger; and, after a great struggle, out came the queen. But she did not stay out long, for she just walked a few inches away and crawled into another cell in which she stayed until I got tired of waiting (about 15 minutes). I again touched her, and again she laboriously backed out, but only to go into another cell. As she seemed determined to stay there, I let her stop. I might say that there was absolutely no honey in any of those cells, being cells from which bees had just hatched. And they were deep cells, too, as only about $\frac{1}{8}$ of an inch of the queen's abdomen was protruding. Do you think that she was sleeping? and what do you think she was doing the day before?

CAPEWEED HONEY, BUT NOT CAPEWEED POLLEN.

After reading *Stray Straws* for Oct. 15 I thought the following, regarding bees visiting the same kind of flowers on the same trip would be of interest. This season, fully half of the bees working on capeweed, which yields light-yellow pollen in large quantities, had a full load of bright-red pollen. The bees, which were getting honey from the capeweed, were, in most cases, well covered in the yellow pollen. Evidently the red pollen was of a better quality, as very few bees had loads of the yellow pollen.

Douglas D. Brearley.

Subiaco, West Australia, Dec. 10.

[Dr. Miller replies:]

This is interesting, and helps answer a question that has puzzled me no little, and no doubt has puzzled others. When one is looking for a queen it sometimes happens that she cannot be found, no matter how carefully one looks over the combs, even for the second time. When that happens, experienced beekeepers well know that she is not likely to be found, no matter how many times one looks over the combs, and the wise thing is to close the hive until an hour or

more later, or the next day, when, most likely, she will be found very readily.

The puzzle has been to know where the queen was that she could not be found. Of course, if the bees were unduly stirred up and running, she might be on the side or bottom of the hive; but in many cases where the bees have remained in perfect quietude the queen has remained invisible. The only guess I could make was that she was hidden; but where? Sometimes she is hidden under the bees, the queen being close to the comb; but a light touch of the fingers upon any such mass of bees easily discovers whether she is there or not.

The only guess left then was that she was hidden in a cell; but it was only a guess, and I never had any proof that it was the right guess. Mr. Brearly now furnishes what seems to be quite satisfactory proof. To be sure, this was a virgin queen, but why should not a laying queen act the same way?

What was that queen doing in the cell? She might possibly be merely hiding because frightened; but a queen as young as she was is not easily frightened, and is generally very easily found, altho when a few days older she is more shy than a laying queen. It is more likely she was resting, and, in the case of the longer stay, very possibly sleeping. A queen sleeps as well as other folks, doesn't she? She remained in the cell 15 minutes. It would be interesting to know how much longer she would have remained if she had not been disturbed.

What was she doing the day before, when she went thru the motions of laying, but of course without laying? I don't know; possibly, as happens in other cases with the very young, going thru motions that can mean nothing, but pre-glimpsing what they will do later on.

Mr. Brearley's observations with regard to pollen is a bit puzzling. Bees were working on capeweed, and half of them were carrying loads of pollen obtained from some other flower. We are not told anything about the number of bees working on capeweed, nor whether it was yielding honey largely. If there was something of a dearth, then it was not so strange that the bees should get honey from one source and pollen from another on the same trip. If a considerable proportion of the bees were working on capeweed, and that plant was yielding well, then it was a remarkable thing that they should get pollen from another source.

Marengo, Ill.

C. C. Miller.

Can a Bee Candy be Made that will be Suitable both for a Moist and a Dry Climate?

I am situated on a promontory 84 feet above the Atlantic where the humidity at times is excessive; and, tho an amateur in bee culture, I think I have discovered something that may interest you.

Last fall I put away in an expensive and well-considered apiary 11 stands of bees; and as three of them did not appear to have such

abundance of honey needed to carry them thru the long and severe winter here as recommended in the books, I purchased a number of pies of "bee candy" and placed one in each of the three lightest hives, setting each pie on one end of the frames in each hive.

In the spring it was found that only these three hives had perished; and on opening them it was found that most of the combs in the middle of the frames were crushed and apparently melted, and all the bees dead, and I could not understand it.

Today is an exceedingly humid day, and I find that the pies of "bee candy" left over have melted into very thin syrup, and dissolved the pie-crust, so that the liquid, almost as thin as water, has all run out, so I am satisfied that that is what killed my bees.

Would it not be possible to make a candy that will not dissolve in the extreme humidity by testing it during manufacture?

Gloucester, Mass.

Anson Mills.

[The conditions referred to so far as humidity is concerned are rather extraordinary. It would be very difficult to make a bee candy that would stand this kind of condition, and yet one which would not be too hard and dry in an ordinary climate. It is difficult to make a candy that would be moist in a hot dry climate and not be too soft for your conditions. In fact, we may say it is impossible to meet both conditions in one candy.]

We doubt very much, whether, with the amount of moisture that you have, any candy could be made that would hold its consistency unless the ordinary bee-cage candy is used, and even that should be put in a metal or porcelain dish, right side up, and not upside down. Our belief is that you had better rely upon sugar syrup made thick or combs of sealed stores.—Ed.]

Clipping the Queen's Wing without Picking Her Up.

With some, clipping queens seems to be a job that causes some nervousness. I have a plan which I have never seen described. I find the queen, and, with the comb flat upon my knees, I take a small pair of spring tweezers, such as jewelers use, and catch her by one wing, and pull just hard enough to hold her without lifting her off from the comb, and with a pair of scissors in my right hand I snip off the wing which I am holding. By this method one doesn't get nervous, or at least I don't, because it isn't necessary to handle the queen, and she doesn't get scented from one's fingers. I have clipped about 75 queens this summer, and haven't lost one, which is pretty fair for a beginner.

HE PAINTED AWAY.

I had a curious time with one queen, however. Just as I cut her wing off she fell over on her side, just as tho she had fainted, and lay there quivering. The worker bees rushed up to her and began to nose her over.

I thought to myself, "There is my first dead queen." She lay there for about a minute, then I took my tweezers and gave her a poke, and she immediately got up on her feet and began running around over the comb as if nothing had happened. I went into the hive about a week after, and she was laying all right. This seems to indicate that cutting a wing off does give the queen more or less of a shock. I have always thought that it does.

PLACE END-SPACING STAPLES LOW.

In lifting a frame out of the hive one has to be very careful that it doesn't bump against the end of the hive, and in so doing crush some of the bees. I have hurt a good many that way, and it made me feel bad to see the poor little fellows crawling around all humped up as tho they were in great pain; so, instead of putting the spacing-staples just below the top-bar, I put them clear to the bottom of the frame. With it down there one can take out a frame without hurting a bee, and not have to use any precaution either. Of course if one wished he could put in four staples—two above and two below.

Wallowa, Ore.

B. R. Curtiss.

[We doubt whether it is a shock to the queen to have her wing clipped. So many of them go on their way, unconcernedly as tho nothing had happened that it seems hardly possible that any queen could feel any shock. Queens are sensitive, "highly strung" creatures. On two occasions we have known queens to double up in that peculiar way merely because they were picked up. It seems to be the result of fright. A number have referred to it as "cramps."]

No less a beekeeper than W. L. Coggsall advocates placing the end-spacing staple low on the end-bar.—Ed.]

Boosting the Cell-builders.

On page 613, July 15, the editor says, "Make colony queenless for six days before giving freshly grafted cells." Suppose the following is given a trial.

As soon as the "cell-starting" colony refuses to do as good work as may be expected with freshly grafted cells, make another colony queenless and broodless, giving all brood to the colony that has been used as a cell-starter. Shake about half the bees from this colony, No. 1, in front of the hive; then shake the queen and bees from No. 2 from all frames in front of same hive. You can then shake the rest of the bees from No. 2 in front of the same hive, and allow the queen from colony No. 2 and bees from colony No. 1 to go into the hive together. The fact that the bees that have been queenless for some time find a hive of brood when they expected nothing but frames of honey causes them to take most kindly to the changed conditions. I have never lost a queen this way, even with fertile workers in the hive.

I usually make this change about every

ten days, and about the sixth day I shake a few frames of bees, about three to a colony starting cells. In this way the colonies are not run down.

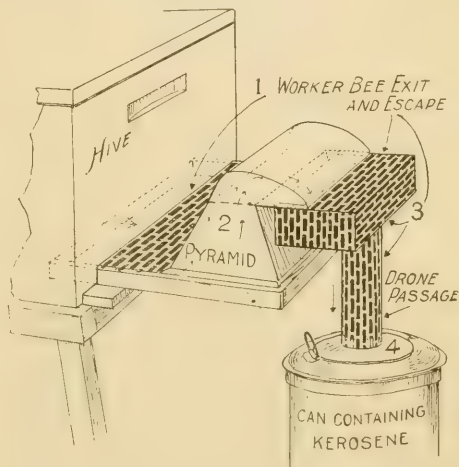
Some days ago I had one of these queenless and broodless colonies start 102 cells in one day. A colony that has been without a queen and brood for about three hours will do better work than one that has been queenless for six days. At any rate, give it a trial.

Spring Hill, Tenn.

Ben G. Davis.

An Apparatus to Destroy Drones.

I am sending you a drawing which represents a drone-trap. This will serve to prevent swarming, provided the wings of the queen have been clipped.



No. 1 is a perforated zinc sheet, allowing the workers to pass thru, but not the drones, which are thus obliged to pass up to the pyramid, and on thru the tube 3 and to the tank 4, which latter contains kerosene. Inasmuch as the passage from No. 3 to the tank is made of perforated zinc, the workers have time to escape, and the queen, whose wings have been clipped, cannot pass up thru pyramid 2. The walls of the latter should be of glass on the inside and tin on the outside, to avoid the light, while escape No. 3 should be of sheet zinc, perforated.

Timote, Argentina. Francisco Peroy.

When is a Select Queen Not a Select Queen?

I am interested in Arthur Williams' article on page 548, July 1. I wish the readers of Gleanings would express themselves in regard to the advertising of untested queens.

Untested queens should be sold as untested, and there should not be two grades of untested. One of the poorest-looking untested queens I ever received proved to be one of the best. Did some one say the selection was for color only? The advertisements do not say what they are selected for.

Queen-breeders can grade tested queens; but what do they know about the untested?

I shall favor those listing one grade of untested queens altho, of course, some of the best breeders list two grades of untested.

Antioch, Cal., July 8. Geo. W. Moore.

[Whether there is any merit in extra size, it is a fact that most beekeepers favor large queens. Why should not a large fine-appearing untested queen be marked "select"?

We agree that there is far too much ambiguity in the so-called grades of queens. The term "golden," for instance, may mean a bright-yellow three-banded bee, or it may mean a leather-colored four or five banded bee. Can there not be greater standardization? We should be glad to hear from our readers.—Ed.]

How to Disinfect Supers that have been over Hives Containing Foul Brood.

Please let me know the best thing to do in the matter of about eleven supers which I placed over some hives containing foul brood, and which I removed a short time afterward. Could I dip these supers in salicylic acid or hot water and use them again? or would it be better to burn them up?

Claude W. Wilson.

Bardstown, Ky.

[The eleven supers which have been placed over hives containing foul brood may or may not have the germs of disease; but it is always wise to err on the safe side, and so we would recommend scorching them out with a common painter's torch. All that is necessary is to blacken the inside of the supers.

Painting the insides with salicylic acid, or putting them in boiling water, may or may not be effective—probably not; but it is a great deal safer and better to use the actual flame itself. If you have no painter's torch you can place a little straw in each super, ignite it, and stir it around so that the flame will reach all sides of the super. Then dash on a little water to quench the flame.—Ed.]

Queens Whose Eggs Fail to Hatch.

I had a young queen this spring that commenced laying when 12 days old. I was busy with other work, and did not look in that hive again for more than ten days, and at that time there were still eggs, no larvæ nor young bees. I thought then that perhaps I was mistaken at first about the eggs, so I waited three more days and still eggs and no larvæ. So I waited three more days, and looked thru all the literature I had, but could not find anything like it. I asked men who had kept bees for twenty years, and they said they never heard of a thing like it, and she was as big and fine looking a queen as any one ever saw. Now, can you tell me why that queen's eggs did not hatch?

Glasgow, Ky.

Joel O. Garman.

[There is, perhaps, one queen in ten thousand whose eggs will fail to hatch. We have had one or two in all our experience,

and we have a number of reports of them, but they are by no means common. The only thing to be done with a queen of that kind is to kill her and replace her with another queen. Why these queens fail to lay we do not know unless there was something wrong with their development in the first place. There is nothing particularly unusual about the queen laying when twelve days old.—Ed.]

How to Mark Sections and Cases to Comply with the Federal Law.

I take the liberty to address you in regard to the net-weight law on honey. In the season of 1915 I marked each box as the law requires, and then I marked the actual net weight on each case, not including the weight of wood and carton. This made $2\frac{1}{4}$ lbs. less weight on each case than I had usually given. I sent to a firm that had done a satisfactory business for me for 20 years. I fully described the net-weight law, and told the firm how I had weighed it, etc. They evidently sold the honey by the pound instead of the case, charging the usual price per pound, which left $2\frac{1}{4}$ lbs. short on each case. A neighbor of mine marked his sections the same as I, but put the weight on the cases as usual—that is, wood and cartons in.

It seems to me the weight on the cases should be the net weight of the honey; but that belief made me lose over one hundred dollars on my sales last year. Which is customary, and which is right?

Shoreham, Vt.

R. H. Holmes.

[The question of just what is necessary to comply properly with the provisions of the net-weight law is still a matter of uncertainty to a good many beekeepers, and there are many who, in complying with the requirements of the law as understood by them, feel that they have been placed at some disadvantage like yourself, having neighbors shipping to some market which pays no attention to the requirements of the law. Yet ignorance or carelessness will not exempt a person from the penalty. Our advice has been to meet the requirements as nearly as possible. In states not having the net-weight law, it is not necessary to stamp honey in any way unless it is intended for interstate shipments; and under these conditions honey sold in the local market is exempt from the requirements of the law in regard to marking; but when sent out of the state, then it comes under the provision of the net-weight law, and a beekeeper selling his honey locally has no assurance of the honey being sold within the limits of his own state.

We pack the honey in cases containing sections of uniform weight, marking the sections with the minimum weight as "Net weight not less than 12 oz." The same stamp or mark should appear on the outside of the case. When the law went into effect, and honey was sold by net weight, the price

advanced 1 ct. per lb. to cover the weight of the section lost by the beekeeper, so really he is getting the same price as before. We do not believe it has been customary for beekeepers as a rule to sell their honey by weight, including the weight of carton and section, as we infer you had been previous to the enactment of the net-weight law; so in reality you will lose only $1\frac{1}{2}$ lbs. per case.

So long as the law stands, there is only one way left open, and that is to comply with its requirements, regardless of what others may do.—Ed.]

Bees Drifting into the Wrong Hive.

I have my bees arranged in two rows at right angles to each other in my backyard, a space of about 60 feet square, one row facing the south and the other facing the west. The hive nearest the angle facing the west, I have noticed for the past month, shows at all times a lot of dead and dying bees in front, with fighting bees on the entrance-board. This seems to go on when the yard is brisk with honey-gathering. The colony has a good queen, and is full of brood in healthy condition. The hive is now light in bees, and has gathered but little increase in honey.

My solution of the matter was that the location of the hive was such that bees from other hives entered it by mistake, until this hive has really worn itself out trying to drive out the innocent invaders. I have now moved it away, and today it seems quiet, but so weak in bees that all but few seem busy inside attending to the brood, with just a few coming and going.

Youngstown, O. Dr. C. E. Blanchard.

[Very often a colony will ball a queen for no apparent reason, and the only thing to do is to cage the queen and let them try it over again.

Your solution of the trouble of the one colony nearest to the angle is correct. The bees made a mistake; and, during the height of the honey-flow, the alien bees were not welcome, and, of course, were killed one after another. The probabilities are that the bees in the angle hive drifted to the other colonies, resulting in a constant decrease in the strength of the hives. You did the right thing in moving the hive to another location.—Ed.]

Polk County (Iowa) Field Meeting.

The Polk County Beekeepers' Association held its third annual field meet at Union Park, Des Moines, on Friday, July 28.

The attendance was not large, partly because it was intensely hot, and partly because the meeting had not been sufficiently advertised. All present joined heartily in the picnic spirit and dinner and were pleased and profited by the program.

Good talks were given by A. L. Clinite, of the Des Moines School Board; by Hamlin B. Miller, of Marshalltown, and by Editor Jarnagan, of the Iowa Farmer. A splendid

reading was given by Miss Crow, of the Des Moines schools, and folk dances by children. J. W. Schlenker, of Ankeny, gave demonstrations in handling bees.

Following the program a business session was held and officers elected for the coming year. Dr. C. L. Wright, of Des Moines, is the new president. The doctor is a live one, and great things are expected for next year's meeting.

Charles E. Dustman.

A 7—30 Increase and a Ton of Honey.

We had a very late and cold spring here. The main honey-flow from white clover started June 25, and we got our first new swarm June 28. To date (July 27) this swarm has produced 84 finished sections.

There has been a letup of a few days in the honey-flow, but it has started big again today, and the yard once more is a perfect roar.

We started a year ago last spring with seven colonies. We now have thirty. We got 800 pounds of good honey last year, and we expect a ton this year.

We live on the river, and there is much timber here (basswood), and acres of waste land. Our principal honey-plants are white clover, alsike, basswood, goldenrod, heartsease, and buckwheat. My wife is also learning the business.

We started all of our new swarms this year on full sheets of wired foundation. We also use full sheets in sections. We find that it pays us big to do this. We do all of our hauling with a "tin flea" (Ford). We went to a neighboring city, 80 miles away, the other day with a load of honey, and got there for breakfast, sold our honey, and were back for dinner.

I must close and go to the woods and find the source of this honey-flow. I think it is basswood.

Osage, Ia.

G. D. Nelson.

But the Queen Comes from a Worker Egg.

When Mr. Doolittle, p. 474, June 15, will remember that the female bees or queens, mothers of the worker bee, are not the product of a special egg, but the product of a worker larva, made fertile by the special work of the nurse bees, then he will understand how this worker larva made fertile "can transmit to a greater or less degree its habits, faculties, peculiarities, and desires to its progeny of worker bees."

Luis R. Casablanca.

Bayamón, Porto Rico.

A Correction.

In my article, page 611, July 15, I noticed that I made it say five frames in each brood-chamber. It should be nine frames, both the full depth and shallow brood-chambers.

Stanton, N. J.

L. K. Cole.

[We find that the mistake is ours. The original copy read nine frames.—Ed.]

Safe after Nine Years?

I have about 25 boxes which can be used to house bees. They had foul brood about nine years ago. Is this foul brood still in them? How can it be stamped out?

Watertown, Wis. Cornelius Trachte.

[There are two types of foul brood, called the American and European. We assume from what you say your experience was with American foul brood as this formerly was called merely foul brood.]

In case of American foul brood it would not be best to attempt to use the combs again. However, we do not suppose this is what you have in mind. The hives are all right to use, but even tho it has been nine years we should take the precaution of scorching out the inner walls with burning straw or a gasoline blow-torch. This would take but little time and it is worth something to be on the safe side. Safety first! Do not char the wood deeply, simply scorch well, and they will be safe.—Ed.]

And Swarm They Did.

I have just been having an epidemic of swarming the like of which I have never seen at this season. All during the month of June there was just flow enough to keep the colonies breeding up. I did everything a man could do to prevent swarming, but swarm they would and swarm they did. And such swarms I never saw before.

Recently, after a swarm had issued I went thru the old colony for queen-cells. I found and cut out 48. One comb had 20 cells on it, two bunches in the middle of five each.

TWO QUEENS IN ONE CELL.

Later we found one cell with two well-developed queens in it in different stages of development. One would have hatched in a day or two, the other in about a week. This cell was a little larger than usual—wider at the base. There was no wax partition between the two queens—only a tin film or skin. The cell was built on the lower edge of the comb.

S. A. Fuller.

Helena, Ark., July 8.

Does the Law Prevent Moving Bees?

I have 12 colonies of bees out on the farm, and am working here on the railroad. I should like to move the bees here in town. Is there any law in Indiana to prohibit it?

Huntington, Ind.

Carl Christ.

[There will be no difficulty about moving the bees provided they are at least a mile and a half from the new location where you propose placing them. If you do not sell the bees to any one else there will be no law against your doing this; but if you propose selling them you probably would have to have them inspected by some authorized inspector before such sale could be made. In that case write to State Inspector of Apiaries, Indianapolis.—Ed.]

Good for Sore Eyes.

It's a novel sight, and very gratifying, too, to see bees active on red clover as they are here now. This is owing, no doubt, to the effect of the terrific heat and drouth of the last two weeks of July that so pinched and dwarfed the bloom that the bees can reach the nectar so abundantly contained in red clover. Abundant rains within the last two days have broken the severe drouth, and with more moisture in prospect it looks as if white clover and alsike would soon revive with the usual return of nectar to the late bloom.

Manawa, Wis.

E. E. Colien.

[We assume that the red clover referred to here is the second crop. The second growth is usually somewhat dwarfed, so to speak, and the corolla tubes likewise are a little shorter.—Ed.]

Cabinet Scraper for Propolis.

In the issue of April 1, 1916, C. Mitchell relates some experiences with various utensils for scraping frames, etc. Permit me to recommend an article intended specially for scraping, and that is the old-time cabinet-scraper—simply a piece of flat sheet steel about 3 x 5 inches in dimensions, and varying in thickness somewhat. It costs ten cents, or probably now fifteen, at any well-stocked hardware store. The cabinet-scraper is sharpened by setting it in a vise and then drawfiling the edges with a single-cut file. Any mechanic will explain drawfiling. It is a very effective tool for many purposes.

Hoboken, N. J.

B. Keep.

O You Yellow-jackets!

In the evening, when the bees come in heavily loaded, I have observed yellow-jackets pouncing down on them as they alight at the entrance, bite them in two at the thorax, and fly off with the abdomen, which contains the honey-sac, while the front part of the bee, the head and thorax, containing the legs and wings, run around on the front of the hive. I have sometimes seen them go in.

I have been unsuccessful in catching these yellow-jackets, and do not know what to do to get rid of them. I am located in the hills, and the brush is full of jackets.

A Subscriber.

Then They Don't have a Chance.

I think I have found a condition wherein the smoke method of introducing queens will not work. It is when the bees are in a cell-building mood—for instance, when they are trying to supersede their queen or when swarming from any cause. With me they will build cells and reject the new queen if they have anything to build them over. I take away all unsealed brood and the old queen and wait twenty-four hours and then introduce.

Grosvenordale, Ct.

Ernest Ryant.

A. I. Root

OUR HOMES

Editor

Without me ye can do nothing.—JOHN 15:5.

Behold, I stand at the door and knock; if any man hear my voice, and open the door, I will come in to him, and will sup with him, and he with me.—REV. 3:20.

A friend of many years has just sent me the tract below. Read it, and see what you think of it.

CONVERSATIONS WITH CHRIST.

If I were asked what is the thing which the devil, the world, and the flesh try hardest to prevent Christians from getting, I should reply, "Conversations with Christ." I say this from my own experience, and from observations of all the Christians I have ever known. A quiet, unhurried speaking to Jesus alone and hearing his replies—this is what every Christian needs every day, and what many get only once a month—or more seldom still—or never.

WHEN DID YOU LAST SO TALK WITH CHRIST?

Stop and answer this question to yourself before you read on.

It is so easy to go to services and listen to prayers and to join in them. It is so easy to sing or pray to him with others, or to think we are doing so because we feel refreshed and helped by it. But what if it should turn out that it was a mistake of ours to imagine that we were actually conversing personally with him at those times; and that we were really talking and singing for other people and ourselves to hear? I tremble for people who pray only in churches or at prayer-meetings, or with other Christians present.

Communion services are very blessed helps and means of grace, but they are not necessarily conversations with Christ; nor is preaching or teaching or working for him. You may be a most religious person—busy all day about God's matters; you may give time and money and thought to him, and yet you may never converse with him. And the danger is, if you do not converse alone with him each day, you will certainly get on the wrong road and get thoroly wrong altogether, and that when you and he meet you will see all your work crumble away, and yourself naked—suddenly waked up to the fact that you and your Savior are strangers to each other. It will be a horrible surprise to you that nothing should remain of all the work on which you spent your life, the solemn words, "Without me ye can do nothing," having been forgotten by you.

He meant that you should have talked to him continually about everything you did, and everything you cared about, and should have been always conscious of his sympathy and oversight and working. But instead of that you talked only to men and women, and made shift with their sympathy, advice, and help. He meant you to ask his counsel about that money trouble. He would have arranged it all; but you only asked your lawyer, and it turned out badly. He meant you to tell him your anxieties about your son, and he would have ended them; but you only consulted your friend, and matters grew worse. He meant you to ask him for light about that doctrine which you could not understand; but you went to books to get it explained, and you became more uncertain than before. He would have satisfied you. He meant you to confess to him that secret sin, and he would have forgiven you and cleansed you; but you confessed it to your clergyman or minister, and it torments you to this hour. He meant you to commit to him that painful illness, and he would have been your physician and healed you; but you trusted your family doctor only, and got no relief. He meant you to ask him how much

money you were to give away; but you settled that yourself, and settled it wrong. He would have been your counsellor about the profession you chose, the situation you accepted, the servant you engaged, the books you read, the friendships you formed; but you chose other counsellors, or did after your own choosing, and all has been failure.

An hour of conversation with him each day will make all the difference.

May the Holy Spirit strike the scales from your eyes now, and may you arise from your enchantment, and take Christ *now* for your personal friend and counsellor!

One there is above all others;

Oh, how he loves!

His is love beyond a brother's—

Oh, how he loves!

With his precious blood he bought us,

In the wilderness he sought us,

To his fold he safely brought us;

Oh, how he loves!

Best of blessings he'll provide us,

Naught but good shall e'er betide us,

Safe to glory he will guide us,

Oh, how he loves!

And will not we take such an almighty lover, Savior, and friend, *wholly* as our counsellor and guide while here below—his own chosen ones, soon to be with him and like him in the glory above?

This little tract has startled me. I have read it several times, and the more I read it the more I am impressed with its truth. In reply to the question which is printed in small capitals, "When did you last so talk with Christ?" the answer to this question will make this Home paper. Those of you who have read *Our Homes* for years past will remember that I have several times—perhaps not very lately—spoken about getting off by myself where I can pray aloud. When greatly discouraged in years past I have sometimes gone off in a field of tall growing corn; and I like to pray when walking along.

In answer to the above, the last time I so prayed was when I paid a visit to the old cabin in the woods, July 13. I reached Traverse City about six in the evening; but I felt as if I must spend the night out in the country up near that old cabin, instead of in a city hotel.

As we approached Traverse City the baggageman on the train said it would cost me \$5.00 to send me up near the old Bingham dock on Grand Traverse Bay by automobile. When I suggested that I was equal to the task of walking eight miles instead of investing so much money, he insisted it was *eighteen* miles, and then came down to \$2.50; but when I agreed to pay so much a mile for all over eight miles, he came down to \$2.00, and finally agreed on \$1.50.

I stopped with the nearest neighbor; but before I went to sleep I pushed my way thru the dense undergrowth and explored

all around the cabin, and next morning I was back there again bright and early. It was interesting to see how my various fruits had stood the years of neglect. A Yellow Transparent apple-tree had made an enormous growth, and was just bending with beautiful apples soon to be ripe. There were also some beautiful sour cherries; but cherries are so plentiful in that region that no one seems to care for the cherries out in the woods. Two mulberry-trees were so laden with luscious fruit, just beginning to ripen, that their willowy limbs lay resting on the ground in the deep grass.* My currant-bushes also had stood neglect pretty well; and three Paragon chestnut-trees gave promise of quite a crop of nuts.

It was going to be a busy day with me, and so I had to bid adieu to the old cottage. In leaving I happened to glance my eye back of the house where Mrs. Root and I planted a variety of roses. Back there in the wilderness were roses, almost a wagon-load of them, many of them as large as saucers, "wasting their sweetness on the desert air." As I thought of the pleasant hours we passed there years ago, and as I looked thru the windows of the deserted old cabin and saw still on the walls the photographs of the children, and the other pictures Mrs. Root had fixed up so tastefully in that old wildwood home, it brought back so many memories that I almost felt like crying because I knew I should probably never go back there again to live. Mrs. Root thinks that, at our age, one home in Florida and one in Ohio are enough for us.

As I had planned walking many miles before night, I reluctantly started off. Soon I was in that old lumber road up thru the hills under the dense shade of the maples and other trees. The beauty of the morning scene, and the inspiration of the fresh air away up toward the top of the hill, prompted me to break forth out loud in praise of God. I prayed for many things, and especially that my influence during the busy day that lay before me might be blessed. As I came out of the woods I have now a distinct recollection of a feeling that my prayer was going to be answered.

I have before mentioned that my good old mother used to say something like this: She would tell me what she wanted, and what she expected of me; and then she would end by saying, "Amos, I have been praying over it, and I have had the assurance that my prayer will be answered."

Dear friends, do not think me visionary when I say that I too felt I had "assurance"

* In that same "deep grass" were great luscious strawberries, the remnants of our strawberry patch of years ago.

that the "talk" with the dear Savior as I went up that shady path thru the woods would be answered.* Two years ago I told you of Mrs. Boone, who led the prayer-meeting there in that Bingham church while her baby lay on a pillow on the floor "cooing" to himself. Well, when I got to the top of the hill I found this same Mrs. Boone; and as she smilingly expressed her pleasure at seeing me once more, she pointed thru a window where there were *two* beautiful children instead of one. Mr. Boone was cultivating potatoes on the hillside where he had just made a clearing. I wish the readers of GLEANINGS could have seen him get his horse and cultivator thru the snags and roots, and dark, rich, loamy soil. While we were talking, a bright young boy eyed me curiously. I had not seen him for so many years that I did not know him; but we soon made friends. At the time of my last visit, his mother, Mrs. Wilson, was an invalid; but I found her then looking well and strong, and at work in the garden.

My next call was at the home of her mother-in-law, Mrs. Wilson, who has been superintendent of that Bingham Sunday-school ever since it was started, about fourteen years ago, or almost that. Very soon after I got there she said something like this:

"O Mr. Root! you ought to have got around to the Endeavor prayer-meeting last night. Jimmie Hilbert led the meeting."

* In going from our cabin in the woods to our little church over between the hills we were obliged to climb over one of the tallest hills in that region; and from the summit of this hill there is a magnificent view of Grand Traverse Bay on the east and of Carp Lake on the west. For years past, when going over this hill I have been in the habit of singing "Beulah Land"—that is, if I were not too much out of breath, as we often are when climbing that hill; and it just now occurs to me that the second verse of Beulah Land fits in wonderfully with the sentiment of the tract in this Home paper. Here it is:

The Savior comes and walks with me,
And sweet communion here have we;
He gently leads me with his hand,
For this is heaven's border-land.

CHORUS:

O Beulah land, sweet Beulah land!
As on thy highest mount I stand,
I look away across the sea
Where mansions are prepared for me,
And view the shining glory shore
My heav'n, my home for evermore.

Notice particularly the words "sweet communion," and see how beautifully it comes in, as one stands still on the summit, and pulls in great lungfuls of the air in the Grand Traverse region. Why, it is almost worth a trip to northern Michigan to stand on that great hill and sing with all your might,

As on the highest mount I stand
And look away across the sea.

It may require some stretch of faith to add—

Where mansions are prepared for me;

but to stretch your faith and your lungs also is good for one, both spiritually and physically; and I truly believe it is our privilege even in this world to get a faint glimpse now and then of that "shining shore."

"*Jimmie Hilbert* led the prayer-meeting, did you say?"

She smilingly assured me that it was Jimmie himself. Let me explain a little. Years ago, when I found friend Hilbert up among the hills, there was quite a family of Hilberts. The two youngest, Jimmie and Gladys, were not only the life of the household, but sometimes they kept the household pretty busy in getting them out of the scrapes they got into. There was but little difference in their ages; but they were always off together somewhere. One afternoon Jimmie got lost; and as he was only three or four years old there was quite a stir in the neighborhood until toward night they found him away over the hills curled up in a fence-corner on the grass, sound asleep. He had evidently wandered away, got tired of trying to find his way home, and concluded to "rest up" while the neighbors hunted for him. Jimmie was always inclined to be a little wild and reckless, but still he loved the wildwood and the farm. A few years ago his father got into the "moving-picture business," and he went around from town to town, taking his family with him. But Jimmie got tired, and wanted to go back home. It may not be true; but one of the neighbors said Jimmie got so homesick to get back among the woods and hills that he said that if he had got to stay in the picture business all his life he would kill himself and have it done with.

As Jimmie grew from boyhood to manhood I felt anxious for his future, and had several talks with him. Two years ago his father got a motor truck to carry his fruits and garden stuff to market, and Jimmie soon learned to run that truck with wonderful skill, and seemed to enjoy it. When good Mrs. Wilson told me that wild Jimmie had actually *led the prayer-meeting* I felt that part of my prayer as I walked thru the woods had been answered already. Gladys, that used to be only a baby, full of mischief, was now a bright grown-up woman, or approaching womanhood. She reminded me so much of her sister Alice that I could hardly keep the tears back. When I expressed my pleasure to hear that Jimmie not only attended prayer-meeting, but had led the meeting, she said, "Why, Mr. Root, I too have led the prayer-meeting." I should not have been so much surprised to learn that Gladys led the meeting, because the girls and women folks more naturally gravitate toward prayer-meeting and all religious gatherings; and may God be praised that it is so.

After dinner, Jimmie took a load of cher-

ry-pickers up to the cherry-orchard, and I went along. I told his father I wanted to see the cherry-trees. Yes, that was true; but I also wanted to have a good talk with Jimmie all by himself. Good Mrs. Wilson said that, while they were members of the Endeavor Society, and led the prayer-meeting, neither Jimmie nor Gladys had as yet united with the church. I had got something of a promise from Gladys, and I wanted some sort of pledge from Jimmie. When I told him how glad I should be to know that he was a member of that little Bingham church he finally said something like this:

"Mr. Root, I am not ready to promise you, just now, that I will unite with the Bingham church; but this I will promise: I will say that, whatever happens, I will *stick to God*."

He gave me his hand on it, and I felt that such a boyish promise as that perhaps meant more, before God as a witness, than a promise to unite with any particular sect or body of Christians. I think of it again and again, and feel glad and happy. "I promise, whatever happens, to stick to God." Dear reader, do you know of any better pledge given by a boy just merging from boyhood into manhood?

By appointment I met at the Hilbert home Mrs. Erna Rorabacher, an older married daughter of the Hilbert family. "Erna," as we always called her, was a little older than Alice. She now lives in Wisconsin. Some time ago I sent her one of my little tracts, "How to be Happy when People Abuse You." I think she wrote to tell me she had just united with the church at Green Bay, Wis.; and when she showed the tract to her pastor he preached a sermon with that tract as a text, and Erna stood at the church door after the services and gave each worshipper one of the tracts. She said to me, "Mr. Root, you will never know, in *this* world, how much good those tracts have done."*

* Friend Hilbert is still a beekeeper; and as I stood before the door my eye caught a glimpse of toward a hundred hives tiered up, most of them two stories high, some three stories, and a few, if I remember correctly, even four stories. When I asked friend Hilbert if we were to understand those four stories were full of honey, he got his smoker and took out comb after comb filled and *sealed* with beautiful white honey. To see if I could detect the source I took my knife and cut out a mouthful from one of the great white slabs; and I think I never tasted any more luscious honey. It was probably a mixture of clover and wild red raspberry; and, by the way, according to my notion there is no better honey in the world than the raspberry honey of northern Michigan. Friend Hilbert's plan is to leave the honey all on the hive, and do his extracting after the season is over or nearly so. In this way it is most perfectly ripened, and superior, of course, to the unripened, and the job can all be finished up at once. With the present price of sugar, these great heavy slabs of honey are the

Then she added that there was a woman in Traverse City who was so anxious to see me that she almost cried when she learned, two years ago, that I had been in Traverse City and she did not know it; and she sent a special request to have me call. Her reason for wanting to see me is one I have heard so many times that it is almost laughable. She said that, in years gone by, in her early childhood her father kept bees, read GLEANINGS, and thought there was nobody in the world like Mr. Root; and her good husband placed his Buick automobile at my disposal while I waited for the night train. As I was interested in the summer cottages he took me past the beautiful summer homes in the edge of the woods around both points of Grand Traverse Bay. Cottages are scattered all along the shores of the bay. The water is as clear as crystal, and the white sandy bottom makes an ideal place for summer outings. Women and children in light airy clothing go there to pass the hot months.

After a refreshing sleep, even on the cars, I awoke in Detroit, a stranger, as I supposed, in a strange land. Our Homes for August 1st has told you of my finding my good friends the Flowers, and how they took me in their automobile not only to the great Ford establishment but all around the city. Surely I can say with the Psalmist, "Goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever."

Now, with this long wandering-away from this subject of that little tract, let us get back. Was not what I have been telling you an answer to that prayer in the woods, that the dear Savior would bless and guide my footsteps during the two following days?

This talking with Christ as described in the tract is to be where nobody can hear or know anything about it. At such times I do not even want to think of how it would strike the people or what others might say. It is all between you and your unseen Lord and Master. A hypocrite or an unbeliever never prays when he is alone. It would be stupid, and sheer folly. I am ashamed to say that of late years I have not gone off by myself and "talked with Christ," as I did years ago, and I firmly believe I have suffered in consequence. It is mostly when disturbed, and something worries me, that

simplest way of feeding a needy colony. Certainly it is the *simplest*, and may be, all things considered, the *cheapest*. Years ago I decided that a pound of honey in the comb, well ripened and sealed up, was worth a good deal more than a pound of sugar in preparing bees for winter—perhaps twice as much. I should like to know what Dr. Miller thinks about the comparative cost of this manner of feeding.

I feel like going away by myself where I can pray out loud; and such praying almost invariably bears fruit.

After the above was in type I came across the following in the *Sunday School Times*. I give it because it is so much in line with our tract at the head of this Home paper. I think I will put a head on it—

"TALKING WITH GOD."

Recently a lady I know had this experience: She had collected a debt due her, and had put aside the Lord's tenth. She was about to apportion it out to home and foreign missions, when suddenly the question came, "Have you asked God about the disposition of that which belongs to him?" She fell upon her knees and waited a while. Suddenly there came to her mind a person she had not seen in years; in fact, it had been about twenty years since they had been in touch with each other. This person, the daughter of an old minister, left with very limited means, served the Master by putting a baby organ in an old buggy and driving out in the country to play at the meetings of any denomination. The order came, "Send ten dollars to that lady." It was done, and the return mail brought a letter saying, "I was sitting on my little porch when your letter came, and I had just said to my heavenly Father, 'Lord, you know I've promised to go to a meeting, and I want to go and help; but you know I haven't a dollar, and my old buggy can't be mended for less than ten. If you want me to go, please send me the money.' Was it not a case of 'Before ye call, I will answer'?"

TRUE AND FALSE PATRIOTISM.

The following, which I clip and abbreviate from a tract sent me, is, as I understand, by Frederick Lynch, in *Christian Work and Evangelist*. I have given place to it because, almost for the first time, it has come to me that what is called patriotism, or a love for one's country, may be not only a mistake but an instigation of the Devil. Those who claim to be followers of the Lord and Savior Jesus Christ should love all countries as well as their own; and I begin to think that the command "Thou shalt love thy neighbor as thyself" might fittingly—at least at the present time—read, "Thou shalt love other nations as thou dost love thine own nation." When humanity gets up to this view of patriotism, world-wide peace will come. As I take it, Frederick Lynch has been himself a witness of the horrors of the battlefield.

Women are rushing from besieged and burning cities with little babies in their arms, and cold, hungry, tired boys and girls, hardly old enough to walk, trying to keep up. Poverty stares millions in the face—poverty not only during the war, but during long years to come. Thousands of women are to be widows, millions of little children are to be left fatherless. Natural affections are already blotted out, and their place being taken by strange, cruel lusts and passions. The virtue of women will be a free commodity for all soldiers. Drunkenness has already spread thruout these lands in a bad orgy.

The thousands of men we saw howling in all the cities of Europe were not men any longer. They had become beasts. The beast could even be seen in their eyes. They howled for only three things—drink, women, and the blood of their brothers. Perhaps there has got to be a wholly new presentation of Christianity before these things can be stopped. Perhaps we have really got to teach what Christ himself taught, namely, that love of all Christians for each other, all men of good will for one another, must transcend race, nationality, and every other bond. We have never dared preach this. He even went further, and said it must transcend *family ties*.

There are exceptions, but in most of us the beast lies just below the surface, and nothing but a regeneration which shall sweep thru men's souls as a wind from heaven can make them clean.

LOVE'S OF ONE'S COUNTRY BEING RIGHT

This whole miserable business has arisen out of a perverted patriotism, a race consciousness raised to the power of madness. It was a Servian "patriot," a devotee of "greater Serbia," who threw a bomb that stirred Austria to revenge. All thru Europe there is this patriotism which makes a god of one's country, and declares there is no other god, which puts love of country above love of one's country *being right*.

the corn crop unless it rains within a very few days. Really God is very good, and I believe he will send the rain in his own good time. Mrs. Whitcomb's health is very poor; but I have not felt so well in ten years as I have this summer. With 100 in the shade almost every day, yet I am standing the hot weather finely. My son James is down on the Rio Grande with the 4th Nebraska National Guard waiting and watching for President Wilson. He has a wife and three children here in Friend, but is too proud to ask for his discharge under the order of the Secretary of War.

Friend, Neb., July 28.

E. WHITCOMB

THE GOSPEL TRACT MISSION.

For some years I have been more or less acquainted with S. E. Roth, of Woodburn, Oregon, who sends out gospel tracts, etc., free of charge. I clip the following from one of his tracts:

Gospel tracts, leaflets, calendars, and blotters free as the Lord provides the means to print and mail them.

GOSPEL TRACT MISSION,

Rt. 3, Woodburn, Oregon.

The letter below will explain more fully his lifework; and after you read it I hope you may be prompted to send for some of his tracts, not forgetting a few stamps, or something more than stamps, if you feel like it. My opinion is that whatever you may send will be "treasure laid up in heaven," if not exactly here on earth.

Brother A. I. Root:—

Greeting in Jesus' name

I just thought if I told you what we, in great weakness and awkwardness, have been trying to do along the line of distributing the gospel in tract form and otherwise, you would make mention of it in GLEANINGS and cause many of God's dear children to pray for us and assist us otherwise.

God has mercifully allowed us in the past eleven years to distribute from several hundred to 10,000 Gospel Tract Calendars annually, also many thousand (possibly millions) of pages of tracts, leaflets, etc., free of charge.

Last year we sent out about 9000 of those calendars, distributed about 50 copies of the Bible and many testaments, gospels, tracts, etc. Now, we do not want to boast, but thought that, if some of God's faithful children who read GLEANINGS knew what our Gospel Tract Mission stands for, and knew that we are just now in need of your most earnest prayers, it would possibly result in much good both to our humble establishment and to others who are interested in distributing literature. Now remember, dear brother, we are *not* a rich concern—have all of life's necessities, such as what we eat and wear; but above that we have far from a thousand dollars' worth of property in this world's goods; are somewhat in debt, and need funds for printing next year's calendars and sending out Bibles, tracts, etc., for which there is a great demand among the poor in various countries. I have sent out literature to United States, Hawaii, Philippines, and even some to Australia, New Zealand, Africa, etc. Oh the joy and satisfaction to be allowed to help a little in proclaiming Jesus' love! It is beyond our ability to express it.

Now our humble request is this: that you mention in GLEANINGS that we wish the prayers of all of God's children that we may be enabled to continue—in spite of hard times—to send out the gos-

"I AM TRYING TO BE A CHRISTIAN WITH ALL MY MIGHT."

On pages 502, 503, June 15, I made mention of E. Whitcomb, of Friend, Nebraska. It would seem that for some reason or other he has not been getting GLEANINGS of late; but I will take pains to see that he gets it from this time on. With this explanation I think our readers will be much interested in the letter below. It is characteristic of Friend Whitcomb:

Brother E. E. Root:—I have been thinking of you quite frequently of late, and wondering if your father, A. I. Root, is yet living; and if so, how he is getting along. When I first started out to be a Christian I was greatly aided by his kindly advice and real helps. I am trying to be a Christian yet with all my might, and am running the newspaper and "monkeying" with the bees in order to help pay expenses. When last we met I think it was down at Dr. Gandy's, investigating his catnip honey. What a sly old mink he was, to be sure! We were able to secure quite a lot of catnip honey ourselves last year, and Mrs. Whitcomb thought the flavor was grand.

Along last winter I noticed an account of your failure in attempting to put a live bee in your mouth without being stung. Mr. Kretschmer once attempted to demonstrate that to me at Chicago, and I pulled the sting from his tongue. In making that illustration a drone is much safer, and it has the same effect with the toys. I am thoroly convinced that the bee is "no respecter of persons." I am in possession of 25 colonies of bees. They stored quite a lot of white-clover honey during June, and swarmed "to beat the band." One could find a swarm hanging on a tree or a bush almost any time.

One swarm alighted on the top of a maple-tree about 30 feet above the ground. This was out of the reach of a swarm-catcher, and I am rather too old to climb any more, so I fixed the hive on the ground and shot the limb off with a 10-gauge shotgun. They came down all right, and were placed in the hive. The weather is very dry now, and the bee business is all shot to pieces with hardly a bloom in sight. Really we are up against it with

pel free as heretofore; or, if it please God, more so than ever.

I would like to mention that I am interested in poultry, and have an incubator standing not more than twelve feet from me here in my little printing-shop, and the chicks are hatching right now. They peep and make quite a fuss. I also have a few stands of bees; have an observatory hive standing

in the rear end of my printing-shop, and am much pleased in watching the busy little creatures doing what God created them for. I wish mankind were as busy trying to fulfill their purpose of creation.

I am glad to hear from you at any time. Many thanks for your kindness in extending our subscription gratuitously for another year.

Woodburn, Ore., July 23.

S. E. ROTH.

TEMPERANCE

OUR CHURCHES, OR THE LIQUOR PARTY—
WHICH SHALL RULE?

From a column article in the Youngstown *Telegram* I clip the opening and closing paragraphs as below:

THE EAST SIDE CLEAN-UP.

The East Side has banished the saloons. Because the work has been carried on without noise or blare of trumpets, the significance of this action is probably not understood by the city at large. It is one of the most advanced steps ever taken by the people of a section of Youngstown to improve their own neighborhood, and, incidentally, to benefit all Youngstons.

In the clean-up movement the pastors and members of the Immaculate Conception, Grace Methodist Episcopal, Second United Presbyterian, and Himrod Avenue Baptist churches, the St. James' Episcopal chapel and Emma Street mission participated. There were non-church goers as well who gave assistance; but by general consent the honor of being the commanding general in this great movement belongs to Rev. J. R. Kenny, pastor of the Immaculate Conception church. It was Father Kenny who first raised the protest against objectionable saloon conditions and undertook the leadership of what would have been looked upon twenty-four hours before as a forlorn hope. It was his summons to East Siders to "clean off their own doorsteps" that awakened them to a realization that they were submitting to an unnecessary handicap to the progress of the East Side. The fact that ninety-two per cent of the men of voting age in his own congregation signed the ouster petitions, and pastors and members of other congregations willingly took up his rallying cry emphasizes the progressiveness.

The above demonstrates most emphatically what has long been said, that if the churches of any average town or community, or even the large cities, would work together, the saloons would have to go. My impression is that East Side, Youngstown, had been for years past under the dominion of the liquor party that had trampled every law under foot, and by action, if not by word, said to the good people of East Side, "Help yourselves if you can;" and the above tells how they could and *did* "help themselves."

Later.—The clipping below from *The American Issue* tells what happens when the churches pull together.

WHY THE DRYS WON; AND WHY TWO BIG CITIES
KNOCKED OUT THE SALOONS.

What was the big factor in the voting dry of Duluth, Minn., a city of 100,000 population? Why did the nearby city of Superior, Wis., with 40,000 population, vote dry?

Well, the drys in both places had good organizations, and the churches pulled together for the overthrow of their greatest enemy, but that was not all. The heads of the great iron mines and steel works near these cities threw their influence on the side of the drys, and thousands of their employees enthusiastically boosted the dry cause. When capital and labor unite with the church they form an invincible combination.

Farming Business gives us a little more information in regard to the outcome of making a city dry.

One proof that prohibition will keep the jail free of drunks is found in a news report from Superior, Wis. On Saturday, July 1, the town went dry; on Saturday, July 8, the city jail was empty in spite of the fact that it is a town with close to 50,000 population. It is the first day "in the memory of the oldest veteran policeman" that the jail was empty.

This is but the common experience of communities which have changed from wet to dry. There is a big reduction in jail and court expenses, and this means a corresponding increase in the economic welfare of the community.

PROHIBITION AND ITS "DEPLORABLE" RESULTS.

Very likely our readers have seen statements in the papers to the effect that prohibition in Des Moines, Iowa, had been "disastrous," etc. For their authority they quoted a Congregational minister. Of course the statement was marked "advertisement," but many people may not have noticed it. Well, as Dr. Kirby was for several years pastor of our own church here in Medina, I sent him the clipping and wrote him as follows:

DR. J. EDWARD KIRBY, PLYMOUTH CHURCH, DES MOINES, IOWA.

My good friend Dr. Kirby:—The enclosed explains itself. I presume likely you have seen the thing many times already, and have probably made some reply to it. Could you kindly send me something in print, or briefly otherwise, telling me how you came to furnish "ammunition" to the liquor people in the way that they have put it? I am sure there is some explanation, as is usually the case in the "facts" they present. Of course it is a paid advertisement. If it will save you time and trouble, you might reply briefly on the enclosed postal.

A. I. ROOT.

Very promptly came the following, penciled on a postal card:

It is a lie of the liquor interests. I said that the new chief of police was not enforcing law as well as the former, and more drunkenness was the result. I am the sworn enemy of the American sa-

loon, and have been fighting it in Des Moines as when in Medina. Prohibition is a success in Des Moines, when we have decent officials to enforce the law. They misrepresent me.

Frankfort, Mich., Aug. 4. J. E. KIRBYE.

The above is only a sample of the way these liquor stories turn out when they are traced down. There is a pretty big moral prominently brought out in the above—the folly of having a chief of police *in sympathy* with the wets after you have voted for prohibition.

SALOONS HELP BUSINESS.

The liquor people urge, as you may know, that saloons help the business of a town; and we shall have to admit, I suppose, that some kinds of business are helped by saloons; and one of these lines of business is the jail business. See the following, which I clip from the *American Issue* in regard to two counties in Ohio:

Belmont County is wet and Hancock County is dry. An item in one of the Belmont County papers last week says there were 70 persons in the county jail. The same week Hancock County papers reported the jail in that county empty. Saloons boost jail business.

PROHIBITION DOES NOT PROHIBIT(?)

Some good friend has mailed us the clipping below, but he does not tell us what paper he took it from.

\$12,000 IN GOOD WHISKY COMES TO BAD END ON DUMP.

Denver's city dump at Thirty-first and Platte streets enjoyed a spree yesterday.

Last night it was "saturated." Whisky worth \$12,000, good whisky, and bad and indifferent, was poured into the ground.

The whisky came from five railroad depots. It

had all been consigned to G. D. Phillips, who until Monday had a "store" at 1704 Sixteenth Street. Phillips was fined \$150 in the county court Monday for violating the prohibition law, and the whisky "poured" at the dump tea party yesterday was his goods. The spilling was directed by police and sheriffs.

It occurs to me that, after a few doses of medicine like the above, the guilty one will "sit up and take notice" that prohibition *does* prohibit.

NO PLACE FOR BOOZE IN THE GREAT FACTORIES OF OUR LAND.

The following, from the Methodist Temperance Board, explains itself:

THIS POSTER WAS TAKEN FROM THE SHOPS OF THE GIER PRESSED STEEL CO., LANSING, MICHIGAN.

Covered with machine grease, and mutilated by the tacks which held it to the wall, the original is in the office of the Board of Temperance of the Methodist Episcopal Church.

YOU CAN'T DRINK AND MAKE GOOD.

MODERN BUSINESS SETS PACE TOO FAST FOR DRINKING MAN'S MIND TO KEEP UP—HE IS NOT IN THE RUNNING.

Science Proves by Delicate Instruments of Precision that He Thinks, Sees, Hears, and Acts More Slowly than the Man Who Doesn't Drink.

Nothing will destroy the usefulness of a strong brain as quickly as alcohol. It is just as disastrous to man's delicate mental machinery as a handful of sand to the mechanism of a watch.

Bright business ideas, ambition, energy, and execution fade under the influence of alcohol like a dream, to be replaced by air castles, "large talk," laziness, sluggishness, and neglect.

HEALTH NOTES

SAVING THE BABIES; "GOD'S KINGDOM COMING."

Just now the whole wide world is, if I am correct, giving more attention toward protecting and saving the babies than ever before. Infantile paralysis is (*perhaps* providentially) directing attention to the matter; and our best and ablest physicians as well as our professors and scientific men are giving it their best attention. Will they succeed in combating this terrible scourge? I take courage when I think how quickly the foot and mouth disease among our domestic animals was stamped out when our nation realized the damage the disease was likely to do. The way in which it had got started before our stockmen knew what the trouble was made it seem almost incredible that it should be so soon headed off. Well,

now, here is something of terrible significance that I copy from the *Ohio Messenger*:

Women have voted in New Zealand for twenty years. The lowest death rate for babies in the world is in New Zealand.

Women vote in Norway, Australia, Sweden, Denmark, and Finland. The next lowest death rates are in these countries.

What would become of this world of ours if it were not for the mothers? and has the world ever given them credit for what they have done and for what they are doing? Now, I am impressed in reading the above of two things. First, that the babies of this world are of infinitely more importance than all the domestic animals on the face of the earth; but I am afraid that even our United States of America have not in times past given them the thought and care that

they have given the cows, pigs, and chickens. The second thing that impresses me is that the mothers of the world have a better *right* to vote, and help in making laws, than any man who was ever born. May God bless the present movement to care for the babies, and also the wave of reform toward keeping temptation out of the way of the little ones when they get to be boys and girls.

"Suffer the little children to come unto me, and forbid them not, for of *such* is the kingdom of heaven."

HOW TO AVOID CONSUMPTION.

The medical adviser of the *Plain Dealer* recently gave a lot of such excellent advice, not only to those having a tendency toward consumption but to everybody else, that I take great pleasure in quoting from it as follows:

But even if your rooms be sunny, don't stay in them all the time. Get out of doors as much as you can. Outdoor work is vastly better than indoor work, especially if one's lungs are weak. On cold rainy days take special pains to keep the feet dry.

Breathe with deep long full breaths, so as to carry the fresh air to every corner of your lungs. Do this every day for several minutes in the morning, and at night with the windows open or while out of doors. Breathe thru the nostrils and not thru the mouth.

Next to fresh air good food is most important for the person who is liable to contract consumption. Spend your money for simple food—milk and eggs, good fresh meat, cereals, vegetables, bread and butter, and fruit.

Don't gorge yourself at every meal—that is likely to do you more harm than good. But eat heartily. Between meals drink milk if it agrees with you.

Live a regular life—get plenty of rest and sleep at regular periods as well as eating regularly.

A daily sponge or tub bath is good when followed by a brisk rub, preferably upon rising.

Above all, keep your courage up. Courage is one of the most important things in preventing or curing consumption. Remember consumptives can be helped and many are cured.

Among other things to be avoided if you would sidestep consumption are dirty shops and stores, overcrowded living and sleeping rooms, dirty saloons and dance halls, dusty kinds of business, and dusty, dirty air. All these things are bad for weak lungs.

Self-indulgence and intemperance are also very bad for the person trying to keep out of the clutches of consumption. Vice weakens the strong, kills the weak.

Then there is the evil of patent medicine. Even the patent medicines which claim to cure consumption are bad for weak lungs, because they contain a large amount of alcohol.

DR. WILEY IN REGARD TO DRUGS AND DRINKS.

We clip the following from the *Vindicator*. See if you cannot say amen to it—especially the closing paragraph.

ALCOHOL EVIL AND DRUG EVIL.

The *Chicago American* (a Hearst paper) quotes Dr. H. W. Wiley, at one time the great Chief Chemist of the Department of Agriculture, as having said in a recent lecture in Chicago that 60 per cent of

the young men who apply for enlistment in the United States army are rejected as physically unfit, and attributing that state of affairs to the use of "habit-forming drinks and drugs." The *American* says:

"Apart from the humanitarian reasons that have all along inspired opposition to injurious drinks and drugs, a new and powerful argument for social efficiency is having its effect.

"It was here that Dr. Wiley's lecture became most forcible.

"The American people can't afford to build and maintain jails, asylums, and poorhouses to take care of millions of human wrecks and their progeny ruined by drugs and drinks.

"They can't afford to have a poisoned heredity injected into the veins of the commonwealth.

"They can't afford to have a large per cent or any per cent of their young men so disabled that they can be of no service to their country, either in peace or war.

"This country, as a matter of incalculable self-interest, must defend itself against enemies which are all the more dangerous because they fly no banners and beat no drums. It must protect the birth, education, and development of every child born under the Stars and Stripes!"

RESUSCITATING DROWNED PEOPLE.

I clip the following from the *Florida Grower*:

Boy Scouts at Boynton proved the worth of their training by rescuing a seven-year-old boy who had fallen into a hole over his head. They plunged in and dragged him to the shore, and then were compelled to use artificial respiration for nearly thirty minutes before he recovered.

There are two points in the above that interest me. The first is, that the Boy Scouts are being taught what to do, and how to manage a drowning person. Secondly, this boy was brought to life after nearly thirty minutes of efforts with artificial respiration. It would be a most sad and serious thing if the friends should become discouraged and give up when there is still a possibility of resuscitation. I regret that they did not tell how long the boy was under water, for it is exceedingly important to know *how long* after submerging there is a possibility of recovery.

"HOW TO KEEP WELL AND LIVE LONG."

The *Christian Herald* gives us an excellent picture of Mrs. Louisa K. Theirs, who is now 102 years old; and the picture they give represents her as quite a good-looking old lady. We clip the following in regard to her:

Mrs. Theirs, when asked for a greeting to the *Christian Herald* readers, said:

"Let me say that I congratulate you on having lived to this day of wonders. If we have only 'picked up pebbles, while the ocean of truth lay all unknown before us,' still wonders have been brought to light.

"If you want to live long and enjoy life, make yourself useful to your fellowmen and cut your food down to the smallest possible quantity. In regard to myself, I can only say that God has been very good to me in giving me health, a long life, many friends, and blessings too numerous to mention."

HIGH-PRESSURE GARDENING

GROWING FIELD CORN IN FLORIDA.

I hold in my hand an ear of corn that is about the handsomest, all things considered, to me, of any ear of corn I ever got hold of. On page 627, July 15, I made mention of three or four ears on the stalk of corn in my Florida garden. I wrote Wesley, when it was hard enough to ship, to send me an ear by mail, and here it is. The seed was procured of the Kilgore Seed Co., Plant City, Fla. Here is what their catalog says about it:

CUBAN OR HAVANA YELLOW FLINT.

This corn will make under all kinds of adverse weather conditions. Small ears, small grain, and one of the hardest of all flint corn, and one that withstands weevils better than any other variety.

The corn is a deep yellow. The kernels are perfectly smooth, as hard as flint, and as shiny as if they had been varnished. It looks somewhat like our old-fashioned Yankee corn, but the kernels go rather deeper. If I understand it correctly, it is so extremely hard and flinty that the weevils cannot easily bite into it. The corn was planted after digging a very nice crop of potatoes. If we gave it any fertilizer at all, it was only a very little. The ground had been, for several seasons before, a part of our poultry-yard, and that probably explains why there are three and even four ears on a stalk. You will recall that Professor Rolf advised me to plant corn and Velvet beans after digging my potatoes. The Velvet beans were inoculated so they might gather nitrogen and benefit the ground. Now, the fact that I have succeeded in getting a fine crop of beautiful corn from the little piece of ground that had been a poultry-yard, or a part of one, does not amount to much. From a late issue of the *Manatee River Journal* I clip the following from a description of

A "500-ACRE CORN-FIELD."

Five hundred acres of corn in Manatee County, in one field, under one fence, and belonging to one firm, is the record up to date, so far as we have been able to learn.

We have seen many fields of from ten to forty acres, and have information that there are some containing seventy-five acres, and one or two of a hundred and fifty; but for a South Florida county to have one field with five hundred acres of good corn in it is somewhat of a revelation.

In much of this corn a fine stand of Velvet beans will be seen, the bean-runners very often covering the stalk so as to hide it entirely, and the ground a perfect mass of vines. The value of beans as a stock food is well known, and is also highly recommended as a cover crop.

At the estimated yield of forty-five bushels to the acre (and, mind you, that was a much lower estimate than that made by experienced corn-men from northern states, the crop would run twenty-two

thousand five hundred bushels; and at the price of ninety cents per bushel would bring to the owners the sum of \$20,250. In addition to this income, in a county where "they" say we can't raise corn, Scally & Knight will turn several hundred head of cattle on the fodder and grass to fatten for the market.

There is no mention in the above of the variety of corn used for this great corn-field. It may be the same as the corn I have just been talking about, the Cuban, or it may not. It is true that corn has been grown more or less in Florida for years past; but until just recently nobody seems to have discovered any such possibility as mentioned above; and I would warn people in the North, who think they can go down to Florida and raise corn like the above, and get such yields, that these are probably the exception, not to be secured except by an expert under the most favorable circumstances. When we can grow not only our own hay but our own corn down in Florida, without sending up to Ohio and away out west for it, we certainly are forging ahead.

Below is Wesley's report of my garden up to Aug. 3:

I am sending the ear of corn. It will not be ready to "house" before the first of September or last of August. The pieplants died during the month of June, as it was so hot. The Velvet beans have covered the whole place. We are having plenty of rain now. I keep the ditches all open so that the water doesn't stand on the place at all. The sweet potatoes are doing nicely. I keep all of the big weeds out of the Velvet beans.

Manatee, Fla., Aug. 3. WESLEY WELCH.

I am sorry to know our pieplants have died; but I was told when I planted them that they would not be likely to stand the summer, and that I would have to replace with new plants every fall. It seems clear that the Velvet bean interferes but little or none at all with the corn, but I was assured all around that such was the case. One reason Wesley speaks of the big weeds is because I found big weeds towering away up above my head the year before, right where that beautiful corn is now maturing.

POISON IVY: A REMEDY.

Mr. A. I. Root:—I notice under head of Health Notes, March 1, remedies for poison ivy, etc. I have accidentally learned that salty meat grease is a sure cure for poison ivy. Applied three times a day for two or three days, it always cures.

Montgomery, Ala., Mar. 6. J. M. CUTTS.

Thanks, my good friend; but do not poison-ivy troubles usually "let up" in "two or three days," even if nothing is done but to let it alone?

Better Queens and Bees for Less Money

20 years of select breeding gives us bees and queens of highest quality---Queens for Honey production---Queens of unusual vitality---Queens that successfully resist European foul brood

Our select colonies for breeding purposes, larvæ, and select drones are those of the highest standard, the choice of over 1000 hustling honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells, which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get large well nourished cells, which in turn produce large, long-lived, and hardy queens that give workers unexcelled for honey production. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved, and the best queens produced.

Price List of Our Three-banded and Golden Italian Queens. Ready by Return Mail.

Untested.....50 cts. each or \$45.00 per 100	Tested.....\$1.00 each or \$ 90.00 per 100
Select Untested...65 cts. each or \$60.00 per 100	Select Untested..\$1.25 each or \$115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.

Price List of Our Swarms of Bees for Fall Increase.

1-lb. swarms with select queens..... \$1.75	2-lb. swarms with select queens..... \$2.50
3-lb. swarms with select queens..... 3.50	5-lb. swarms with select queens..... 5.00

All orders filled at once, or as desired.

We have no disease of any kind. Satisfaction we always guarantee.

M. C. Berry & Company Hayneville, Alabama

Why Not Declare War?

against weak colonies, old queens, and diseases by buying and requeening with my young, vigorous, three-banded Italians. They are bred for honey and gentleness. 50 CENTS each; \$45 per 100. This is a first-class queen at a cheap price. Guaranteed to be as good as money can buy; to give perfect satisfaction, and reach you in first-class condition.

N. Forehand . . Fort Deposit, Ala.

DOOLITTLE & CLARK

Italian queens are what you want for fall requeening. Try them! Prices: \$1.00 each; \$5 for six; \$9 per dozen.

Marietta, New York

Please Notice Change of Prices of Leininger's Strain of Italians

We will sell untested Italian queens at 75 cts. each; six, \$4.50; tested, one year old, at 80 cts. each; six, \$4.80; tested, young, \$1.25; six, \$6.50. Breeders, \$10 each. We guarantee that all queens will reach you in good condition, to be purely mated, and give satisfaction.

Fred S. Leininger & Son . . Delphos, Ohio

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.
Queen-breeder

J. P. MOORE,
Route 1, MORGAN, KY.

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September, 75 cts. each; \$8.00 per dozen. Select tested, \$1.50. Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, ... Glenwood, Michigan

BEE SUPPLIES

Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—White-clover extracted honey in 60-lb. cans, two cans to a case. ARTHUR NORBERG, Spring Valley, Ill.

NEW ORANGE-BLOSSOM HONEY.—Two 60-lb. cans, \$9.75. Sample bottle by mail, 10 cts. OTTO LUHDORFF, Visalia, Cal.

Clover honey, extracted, in 60-lb. cans; comb in $4\frac{1}{4} \times 1\frac{3}{4}$ sections. Write for prices, etc. E. L. LANE, Trumansburg, N. Y.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

New well-ripened clover extracted honey in new 60-lb. cans at 9 cts.; sample, 10 cts. CARL H. J. BAUMBACH, Fall Creek, Wis.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, $7\frac{1}{2}$ cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Thick, well-ripened white-clover ext. honey in 60-lb. cans at 9 cts. per lb. Orders filled promptly. HOWARD HONEY CO., Tyre, Mich.

FOR SALE.—Fine quality raspberry-clover-milkweed blend of honey in new 60-lb. cans (two in case). Write for sample and price. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Extra-quality white-clover honey, $8\frac{1}{2}$ cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone, \$1.00. EARL RULISON, Rt. 1, Amsterdam, N. Y.

Write to O. H. Schmidt, Rt. 5, Bay City, Mich., for prices if you wish to obtain unexcelled extracted clover honey in small or quantity lots in various containers. Do it now.

FOR SALE.—Best quality white-clover extracted honey in new 60-lb. cans, 2 cans per case. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order. DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW CO., Clarion, Mich.

New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Choice New York State clover honey in 60-lb. cans, two in a case, at $7\frac{1}{2}$ cts. per lb., f. o. b. Delanson, N. Y. FRANK C. ALEXANDER.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at $8\frac{1}{2}$ cts. per lb. Also fancy and No. 1 clover comb honey, $4\frac{1}{4} \times 1\frac{3}{4}$ sections. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb.-net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address the BEEKEEPERS' REVIEW, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Honey in carlots or less. Send sample. O. N. BALDWIN, Baxter, Kan.

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW CO., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

Beeswax bought and sold. STROHMEYER & ARPE CO., 139 Franklin St., New York City.

WANTED.—Honey-extractor, frames $11\frac{1}{4} \times 17$. G. F. TUBBS, Springfield Center, N. Y.

WANTED.—Comb honey; fancy and No. 1 qualities; $4\frac{1}{4}$ square by 1 $\frac{1}{2}$ sections preferred. Also white extracted honey, carload or less; quality. HOFFMAN & HAUCK, Richmond Hill, N. Y.

FOR SALE

Get our new Rubber Stamp and Label Catalog. ACME PRINTING CO., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—165-lb. honey-kegs at 55 cts., f. o. b. factory. N. L. STEVENS, Venice Center, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts., prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordlonville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 831 E., Washington, D. C.

REAL ESTATE

FOR SALE.—A nice twenty-acre farm with 100 swarms of bees, and large ginseng-beds; also 4800 pounds of extra nice raspberry-clover honey.

L. FRANCISCO, Mosinee, Wis.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 Ry Exchange, Chicago.

VIRGINIA AND NORTH CAROLINA FARMS, \$15 per acre and up. Easy payments. Fruit, dairy, stock; climate, schools, churches, roads, markets, and neighbors of the best. Get our Farm Lists, Magazine, and other interesting literature, all free. Address E. H. LABAUME, Agr. Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

For sale in the Okanagan Valley, British Columbia, Canada, ten-acre lot, surrounded with orchard, apiary of 50 hives, supers, etc., extractor, honey-house, bee-cellar, 10-room house with furniture; large barn, one horse, two sets harness, buggy, democrat, cutter, bobs, workshop, hen-house, woodshed, 12 cords firewood; no mortgage; dry climate; plenty irrigation; with crop; instant entry, \$5000 cash. Address "MANAGER,"

V Glenalva Apiary, Lavington, B. C., Can.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Nice Italian queen bees for 75 cts. each; six for \$4.00. J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—Untested golden Italian queens, 60 cts. J. F. MICHAEL, Winchester, Ind.

Rhode Island northern-bred Italian queens, \$1. Circular. O. E. TULIP, Arlington, R. I.

Golden-all-over-queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—200 colonies bees, first-class location. J. B. MARSHALL, Big Bend, La.

FOR SALE.—No letter Italian queens; one, \$1.00; six, \$5.00. J. W. ROMBERGER, St. Joseph, Mo.

MUST SELL.—40 colonies highest bidder. Write E. E. COLIEN, Manawa, Wis.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed.

H. K. TURNER, Rt. 4, Greenville, Ala.

Five hundred dandy leather-banded Italian queens for September, at 50 cts. each. No better. J. H. HAUGHREY, Queen-breeder, Berrien Springs, Mich.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.

EDITH M. PHELPS, Binghamton, N. Y., East End.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Siler City, N. C.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

FOR SALE.—Thirty colonies of bees in ten-frame hives; also thirty acres of level farm land, new buildings. CLIFFORD ANDERSON, Rt. 4, Conneaut, O.

Golden and three-banded Italians; 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb.

D. L. DUTCHER, Bennington, Mich.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.

HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randieman, N. C.

Fine three-banded untested Italian queens, northern bred, each 80 cts.; ten for \$7; fifty for \$30. Safe delivery guaranteed. M. H. HUNT, & SON, N. Cedar Ave., Lansing, Mich.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—25 colonies of bees, good shape; 50 empty hives, some never used; 75 shallow extracting supers. No disease. The lot to go cheap.

S. R. CHAFFEY, Marion Station, Md.

FOR SALE.—200 colonies bees for sale, with 78 2/3 acres splendid land; 50 acres tillable. Ideal location. Will sell separate.

J. B. MARSHALL, Big Bend, La.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$10 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

Extra select untested golden and three-banded Italian queens, 50 cts. each; 6 for \$2.95; 12 for \$5.75. Satisfaction guaranteed.

G. H. MERRILL, Pickens, S. C.

FOR SALE.—350 strong colonies with extracting and comb equipment; unlimited range; continuous flow; water-white honey; no disease.

J. O. BAIRD, Rt. 1, Haines, Oregon.

MILLER'S STRAIN OF ITALIAN QUEENS.—Still on the map with a few choice untested queens. One untested, 75c; 6, \$4.00; 1 sel. unt., \$1.00; 6, \$5.00.

I. F. MILLER, 1214 Ozan St., Pittsburg, Pa.

Formerly of Brookville, Pa.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write
WM. CRAVENS, Rt. 7, San Antonio, Tex.

Three-banded Italian queens; 1, \$1.00; 6, \$5.00; 12, \$9.00; Moore's strain. Satisfaction guaranteed.
F. L. JOHNSON, Mt. Airy, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing.
A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

Large well-bred three-band Italian queens by return mail; 1, \$1.00; 6, \$5.00; 12, \$9.00; guaranteed purely mated, select tested, \$1.50; full colonies, 10-frame, \$8.00; 8-frame, \$6.00, queen included.
S. G. CROCKER, JR., Roland Park, Md.

HOLLOPETER'S strain of hustling three-banded Italian queens by return mail at 75 cts. each; 6, \$4.00; 12, \$8.00; 25, \$15.00. Tested queen free with each order for 12 or more untested queens. Satisfaction given. J. B. HOLLOPETER, Pentz, Pa.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 3384, Rt. 6, San Jose, Cal.

FOR SALE.—Fifty colonies of bees in 10-frame L. hives, combs built on full foundation; 120 Danz. comb-honey supers; 1 Cowan 2-frame extractor; 8 Holtermann winter cases; a lot of bee-books, etc.
FRANCIS W. GRAVELY, Stockton, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½ lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Golden and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SMITH, Rt. 181, Wharton, N. J.

My Breeder, a daughter of one of Dr. Miller's best queens, is proving superior to any I have been able to procure. Daughters of this queen, untested, 75 cts. each; \$8.00 per doz.

J. I. BANKS, Dowlstown, Tenn.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

Choice Italian, Carniolan, or Caucasian queens; Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. G. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, O.

The Stanley Improved Cell-starting Hive and Queen-rearing Outfit, complete, \$5.00. The same with a choice breeder, \$6.00. Warranted Italian queen, 60 cts. each. Tested, \$1.00. Virgin, 25 cts. Choice breeding queens, \$2.25. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & Co., Loreauville, La.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

NOTICE TO HONEY-PRODUCERS.—We will send by return mail three-banded Italian queens at 50 cts. each. Lots of 25 or more, 45 cts. each. A choice lot of select tested at \$1.00 each; 25 or more, 75 cts. each. No disease. Safe arrival guaranteed.

MARCHANT BROS., Union Springs, Ala.

FOR SALE.—One hundred colonies of bees in fine shape, free from all disease, and fine location; equipped for comb honey. Started in spring with sixty colonies, and have taken off 5000 lbs. white-clover honey; have increased 100. Reason for selling, I want to change to California.

J. H. HALL, 1828 Cypress, Kansas City, Mo.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None letter for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10; select tested, one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

The bargain of the season—listen: *The Beekeepers' Review* to new subscribers is \$1.00 per year. Ten three-banded Italian untested queens at 50 cts. each would be \$5.00. *The Review* for the last four months of this year would be 33 cts., total \$6.33. Send us \$5.00 for the *Review* 16 months, beginning with the September number, and receive 10 untested queens, mailed you direct from our breeder in Mississippi. To get this exceptional bargain, address all orders to *The Beekeepers' Review*, Northstar, Mich.

BEEES FOR SALE.—120 colonies Italian bees, located in one of finest honey belts in the U. S., in the heart of the great Salt River Valley, under famous Roosevelt Dam, six miles from Mesa, Arizona; entirely surrounded by miles of alfalfa. Equipped with fine queens, ten-frame Langstroth hives, combs of full-sheet foundation, queen-excluders, supers, and all latest improvements; honey-house, extractor, and accessories included free. A snap at \$6.00 per colony—less than total original cost, not considering location and bees. An excellent chance to locate and expand in a great up-to-date farming country with a remarkable future. I am permanently located in Chicago, and must sell at once. Only those who mean business write at once for interview or further particulars.

J. EARL PETERSON,
S. A. E. House, Evanston, Ill.

HELP WANTED

WANTED.—Young man to work with bees and poultry; some experience required. Must be temperate and willing to work. Steady employment if satisfactory. E. L. LANE, Trumansburg, N. Y.

Special Notices by A. I. Root

GOOD BOOKS AT A BARGAIN.

In our issue for June 15 I gave you a list of books that had got to be somewhat out of date. Quite a lot of them have been sold, but there are a good many of them left yet. We cannot very well reduce the prices any further on most of them, because quite a few at the low price I gave (five and ten cents) only a little more than cover the postage. I find that what is left of "The New Agriculture," a \$2.00 book, most of them are more or less damaged by having the covers get wet by an accident. The reading-matter is just as good, however; but in view of the damaged covers we make the price from now on 50 cents, postage paid.

DR. BIGELOW ELECTED SCOUT NATURALIST.

The managers of the Boy Scouts of America have elected Dr. Edward F. Bigelow, of Sound Beach, Ct., "Scout Naturalist." He will guide the great and growing organization of boys in their nature studies, answer questions, and conduct a department entitled "On Nature's Trail" in *Boys' Life*, the official monthly publication of the Boy Scouts. Their magazine has already attained a circulation of more than 100,000.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ **THE DEVELOPMENT OF THE APPLE FROM THE FLOWER.** By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ **CATALOG OF BEEKEEPERS' SUPPLIES.** Our new complete catalog, mailed free to any address on request.
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- ☐ **THE BUCKEYE HIVE**, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
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- ☐ **ADVANCED BEE CULTURE.** A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$..... to cover the cost.

Name
Street Address or R. F. D.
Town
State

QUEENS AT 50c

These queens are guaranteed to be as good as money can buy. They are bred by the same and with the care as the high-priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey-gathering, gentleness, and not inclined to swarm.

	1	6	12	25	50	100
Warranted	.50	3.00	6.00	11.75	22.50	43.75
Select untested	.65	3.50	6.75	12.50		
Tested	1.00	5.50	10.00			
Select tested	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

L. L. FOREHAND, Fort Deposit, Ala.



Prices Reduced for . . . Rest of Season

For resisting foul brood no bee can be found that will excel ours. Requeen now while you can get them cheap.

Three-banded and Golden Italian

Untested queens	. . . 75c
Tested,	. . . \$1.00
Selected,	. . . 2.00

W. J. Littlefield, Little Rock, Arkansas
Box 582

HONEY-JARS

No. 25 one-pound screw-cap honey-jars, one gross to a crate, \$4.75; two-dozen cases, \$5.25 gross. We have several styles of jars, cartons, and shipping cases. Italian bees and queens. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

3 Garden Tools in 1 The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self-adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

Barker Mfg. Co.
Box 117 David City, Nebr.



The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.



By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c; with other goods, 70c.

OLD COMB AND CAPPINGS rendered into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

THE FRED W. MUTH CO.
204 Walnut Street Cincinnati, Ohio

TRADE NOTES

SECOND HAND HONEY-CANS.

Those in need of cans for extracted honey will do well to consider the choice second-hand cans which we have to offer. We save only the best, and repair any boxes which need repair. The cans are free from rust inside, and rarely have any trace of rust outside. They are really good enough for choice honey. The price is \$4.00 for 10 cases of 2 cans each; \$8.50 for 25 cases, or \$30 for 100 cases. We have a supply at Philadelphia; also in New York, at same price.

CARTON AND LABEL ORDERS.

Notwithstanding the two advances in prices of cartons and labels the demand is phenomenal, and we are somewhat behind on orders. In order to take more prompt care of orders for goods in this line we are installing a new automatic self-feeding printing-press with a capacity of 3600 impressions per hour. With this to help out we hope to catch up, and also take care of future orders more promptly.

SHIPPING CASES AT BARGAIN PRICES.

We call attention to a list of shipping-cases offered at bargain prices and prompt shipment. The list is found on the first inside cover page of this issue. We have the following to add to this list, all in stock at Chicago, Ill. We also list some bargains in glass honey-packages no longer listed in our catalog.

- 5 crates, 50 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, \$4.00 per crate.
- 35 crates, 10 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, 85 cts. per crate.
- 3 crates, 50 each, 16-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, \$4.50 per crate.
- 7 crates, 10 each, 16-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, 90 cts. per crate.
- 7 crates, 10 each, 12-lb. cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, 85 cts. per crate.
- 1 crate, 50 each, 12-lb. cases for $4 \times 5 \times 1\frac{1}{2}$ sections, \$4.00 per crate.
- 12 crates, 50 each, 15-lb. cases for $4 \times 5 \times 1\frac{1}{2}$ sections, \$4.00 per crate.
- 9 crates, 10 each, 15-lb. cases for $4 \times 5 \times 1\frac{1}{2}$ sections, 85 cts. per crate.
- 4 crates, 10 each, 12-lb. Safety cases for $4\frac{1}{4} \times 1\frac{1}{2}$ sections, with cartons at \$1.20 per crate.
- 5 cases 2 doz. No. 25 jars, porcelain top, at \$1.00 per case.
- 7 cases, 2 doz. 1-lb. Hershisier square jars, nickel top, at \$1.30 per case.
- 1 case, 12 doz. 1-lb. Hershisier square jars, nickel top, at \$7.00 per case.
- 8 cases, 2 doz. $\frac{1}{2}$ -lb. Hershisier square jars, nickel top, at 80c per case.
- 2 cases, 12 doz. $\frac{1}{4}$ -lb. Hershisier square jars, nickel top at \$4.50 per case.
- 1 case, 12 doz. $\frac{1}{2}$ -lb. round Hershisier jars, nickel top at \$5.00 per case.
- 15-oz. Octagon jars with screw cap in crates $3\frac{1}{2}$ gross offered at \$4.25 per gross.
- 3 2-3 gross of $\frac{1}{2}$ -lb. square jars with cork at \$3.75 per gross.
- $\frac{1}{2}$ gross of 1-lb. square jars with cork at \$4.75 per gross.
- 90 3-oz. cans at 25c each.
- 12 5-gallon round wood jacketed cans at 50c each.

GLASS HONEY-PACKAGES ADVANCED.

Increased cost of materials affects glassware to such an extent that we are obliged to announce higher prices on the various glass packages listed in our catalog. The taper-panel jars are advanced 10 cts. a case, making the new price for $\frac{1}{2}$ -lb., 90 cts. per case; 6 cases, \$5.10; 1-lb., \$1.10 per case; \$6.30 for 6 cases. The round Federal and Tiptop jars are also advanced 10 cts. per case, making the new prices as follows:

- Federal jar, \$1.20 per case of 2 doz.; 6 cases, \$6.90
- 15-oz. round jar, 95 cts. per case of 2 doz.; 6 cases, \$5.40.
- 16-oz. round jar, \$1.00 per case of 2 doz.; 6 cases, \$5.70.
- $\frac{1}{2}$ -lb. Tiptop jar, \$1.10 per case or \$5.50 per crate of 1 gross.
- 1-lb. Tiptop jar, \$1.20 per case or \$6.00 per crate of 1 gross.

6 $\frac{1}{2}$ -oz. tumbler, \$1.00 per case of 4 doz.; \$7.50 per bbl. of 40 doz.

TIN HONEY-PACKAGES.

New quotations received on tin cans and pails are very much in advance of former prices. We are fortunate in having a supply of 5-gallon cans, bought before the advance, so we can continue for some time yet furnishing these cans at the present list price. We are obliged to name higher prices on the friction-top cans and pails for shipment direct from Chicago or Baltimore as follows:

- 2-lb. can, 500 to crate, \$16.00 per crate; 90 cts. per case of 24.
- 2 $\frac{1}{2}$ -lb. can, 462 to crate, \$17.00 per crate; \$1.05 per case of 24.
- 3-lb. can, 420 to crate, \$18.00 per crate; \$1.20 per case of 24.
- 5-lb. pail, 200 to crate, \$13.00 per crate; \$1.00 per case of 12.
- 5-lb. pail, 50 to crate, \$3.75 per crate.
- 10-lb. pail, 100 to crate, \$10.50 per crate; 80 cts. per case of 6.
- 10-lb. pail, 50 to crate; \$5.50 per crate.

REGULAR AND SAFETY SHIPPING CASES.

Because of the great increase in the cost of paper in all forms we find it necessary to advance prices of the regular 24-lb. shipping-case \$1.00 per 100, and of the safety cases, including safety cartons, \$4.00 per 100. In 100 24-lb. cases there are 2400 safety cartons. The price of these cartons is advanced \$1.50 per 1000, which makes the increase for cartons alone \$3.60 per 100 cases. There is, besides, the drip paper and corrugated pads, which are now costing considerably more. These pads cannot well be dispensed with. In fact, where cartons of some kind are not used, there should be divisions in the case to protect the comb honey properly for safe shipment.

THE A. I. ROOT CO., Medina, Ohio.

AN ANNOUNCEMENT.

It has been the dream of beekeepers for many years to have honey so widely and thoroly advertised that it would become an article of common everyday household use. This dream is now crystallizing into substantial form. The United Honey Producers is arranging to have the food value of honey and domestic use taught in the schools of the United States. Obviously there is no quicker way to popularize it than to educate our future housekeepers to use it in the best manner.

The school officials have been asked if they would assist in this, and in almost every instance they have agreed to do so if suitable bulletins are supplied to the schools by the beekeepers. The United Honey Producers is arranging to do this, and will print them in quantities to supply all the schools.

This is a grand opportunity; and, as the editor of the *Western Honeybee* declares, "A grand idea, and no one interested in the production of honey can afford not to endorse it."

We will take it for granted that you do endorse it; but we want you to say so. Write to your vice-president or to the secretary, and tell him so. It is planned to have one or more beekeepers in each county, and more when possible, to represent the United Honey Producers, and be ready when called on to give simple demonstrations before the pupils, to supplement the instruction, and for other necessary work in connection with the United Honey Producers.

This is a matter of general importance, as well as personal advantage to the county members, as it will bring liberal compensation to them in the way of prestige as representatives of the National organization. For the present these positions will be filled by volunteers. Later they will be elective or be appointed.

The United Honey Producers will specialize on this policy, and concentrate its efforts in pushing it to a successful culmination. When its present plans are successfully realized, it will take up some other things that are needed and carry them out. The discipline and organization that this campaign will bring will make possible other things.

Detailed information can be obtained by writing to your vice-president or to the secretary.

Redkey, Ind.

GEO. W. WILLIAMS, Sec.

SPRAY THE EASIEST WAY BY USING Myers Cog-gear Spray-pumps

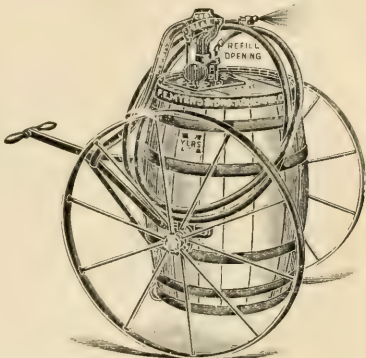
It pays to protect the orchard and garden by careful and thorough spraying. USE MYERS SPRAY-PUMPS and you can do the work easily and effectively. The Patented Cog-Gear Head on Myers Pumps causes them to operate easily, even when working against high pressure. These pumps can also be used for painting, whitewashing, and disinfecting.



Write for catalog showing Bucket and Barrel Sprayers, Power Spray Outfits, and all kinds of spraying accessories. We have a copy for you.

F. E. MYERS & BRO., ASHLAND, OHIO

No. 351 Orange Street
ASHLAND PUMP AND HAY-TOOL WORKS



Given Free --- A Select Tested Queen

of the HOLLOPETER Strain of Italians---a distinctive honey-gathering strain of three-banded Italian bees and queens---with each order for twelve or more untested queens.

Our very finest queens are reared during the buckwheat honey-flow in August and September, and we are now prepared to fill your order with the best by return mail at these prices. Each untested queen, 75c; 6 for \$1.00; 12 for \$8.00; 25 for \$15.00. Safe arrival and satisfaction guaranteed.

J. B. Hollopeter, Queen-breeder, Pentz, Penn.

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on	1 to	10 queens, 50 cts. each
"	11 to	25 queens, 45 cts. each
"	26 to	100 queens, 40 cts. each
"	101 to	1000 queens, 38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal. Dadant & Sons, any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in our yards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July

Select Tested Queens.....1 for \$1.75; 12 for \$19.25

Tested Queens.....1 for \$1.05; 12 for \$12.00

Untested Queens.....1 for 60 cts.; 12 for \$ 7.00

Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.

August and later

1 for 55 cts.; 12 for \$ 6.00

1 for \$1.00; 12 for \$10.75

1 for \$1.65; 12 for \$18.00

Add price of queen. If any of our untested queens should prove to be mated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio

Gleanings in Bee Culture



Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 8 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 19 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate.
- 15 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-lb. cases, at \$4.00 per crate.
- All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x1½ plain.

- There are also for the same size section, packed 10 in a crate:
- 10 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
 - 4 crates of 10 each, 6¼-inch, 2-row, at 85 cts. per crate.
 - 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

- For the 4¼x1½ beeway section we have:
- 5 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.

- 8 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.
- 14 crates of 50 each, 11½-inch, 2-row, for 12 sections, at \$4.00 per crate.
- 6 crates of 10 each, 12-lb. safety cases with cartons, at \$1.20 per crate.
- 3 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.
- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

- For 24 sections, 4¼x1½ plain:
- 1 crate of 25 each, 9½-inch, 4-row, at \$4.00 per crate.
 - 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
 - 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

- For 12 sections 4x5x1½:
- 26 crates of 50 each, 3-row cases, at \$4.00 per crate.
 - 1 crate of 50 each, 3-row, for 15 sections, at \$4.00 per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½x5x1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼x1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼x1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½x5x1½ sections at 85 cts. per crate.
- 2 crates, 10 each, 12-lb. cases for 4x5x1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4x5x1½ sections, including safety cartons \$1.20 per crate.

At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 1 crate 50 15-lb. cases for 4x5x1½ sections, at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼x1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼x1½ sections at \$4.50 per crate.
- 1 crate of 10 12-lb. cases for 4x5x1½, at 85 cts.
- 7 crates, 50 each, 12-lb. cases for 3½x5x1½ sections, at \$4.00 per crate.
- 5 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Philadelphia Branch.

- 1 gross ¼-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each, ½-lb. square jars with cork, at 90 cts. per case.

At Washington, D. C.

- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 4 dozen ½-lb. Hershisers jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hershisers jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1....holding 24 sections, 4¼ x 1 7⁄8, showing 4.....	10, \$2.00; 100, \$18.00
No. 3....holding 12 sections, 4¼ x 1 7⁄8, showing 3.....	10, \$1.30; 100, \$11.00
No. 1½....holding 24 sections, 4¼ x 1 ½, showing 4.....	10, \$1.90; 100, \$17.00
No. 6....holding 24 sections, 3 3⁄4 x 5 x 1 ½, showing 4.....	10, \$1.80; 100, \$16.00
No. 8....holding 24 sections, 4x5x1 3⁄4, showing 4.....	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

		with 3-inch glass		with 2-inch glass	
No. 11....Same as No. 1.....	Nailed, 35c; in flat, 1, 25c; 10, \$2.30; 100, \$21.00.....	100, \$20.00			
No. 13....Same as No. 3.....	Nailed, 22c; in flat, 1, 15c; 10, \$1.40; 100, \$12.50.....	100, \$12.00			
No. 11½....Same as No. 1½.....	Nailed, 35c; in flat, 1, 25c; 10, \$2.20; 100, \$20.00.....	100, \$19.00			
No. 16....Same as No. 6.....	Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....				
No. 18....Same as No. 8.....	Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....				

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

**GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.
COMB HONEY.**

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.

"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested.....	1.50	8.00	15.00	1.00	5.00	9.00
Select tested.....	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei.....	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei.....	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies.....	6.00	30.00		5.00	25.00	
10-frame colonies.....	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees.....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me. C. O. Miller.

Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries
Mayhew, Miss.

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested.....	during June, \$1.50; in July, August, and September, \$1.00
Select Untested.....	1.75
Tested.....	2.50
Select Tested.....	3.50

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

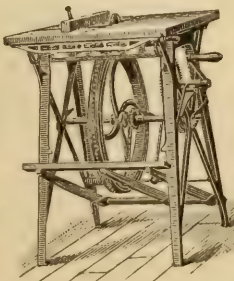
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.
645 Ruby St.
ROCKFORD, ILLINOIS



"THE WHOLE WIDE WORLD FOR JESUS."

Tell Mr. Root that I am with him on the saloons. Our township is dry. I should like to see the United States go dry, and not allow any whisky to enter its boundary. EVERT HELLER.

Sparksville, Ind., June 12.

KIND WORD FROM A B C AND X Y Z SCHOLAR.

My bees are doing fine. I bought 20 colonies in April and divided them. I now have 35 and they are as lively a bunch as you ever saw. I never had bees before, nor even saw the inside of a hive with bees in it, but that "X Y Z" book "got me by" all right so far. I really believe I have it almost committed to memory. Wauseon, O., May 27.

DR. A. P. BETTS.

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
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H. H. ROOT
Managing Editor

J. T. CALVERT
Business Mgr.

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POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CLEVELAND.—There is a little old honey still in market at \$2.50 to \$3.25 per case, according to quality and condition. New honey, fancy grade, is selling slowly at \$4.00. Demand is light for all grades. C. CHANDLER'S SONS.

Cleveland, Aug. 24.

ALBANY.—Weather here has been so hot during the past ten days there has been no demand for honey, and but very little offered. A few local producers have appeared in city public market with white comb honey, selling it in a retail way at 15 cts. a comb. No established prices yet. White honey is a good crop. Buckwheat also is promising at present. CHARLES MACCULLOCH.

Albany, Aug. 25.

DENVER.—We are selling new crop comb honey in the local market at the following prices: Fancy, per case of 24 sections, \$3.11; No. 1, \$2.97; and No. 2, \$2.85; white extracted, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¾ cts. per lb., and amber 7 to 8 cts. per lb. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Aug. 26. FRANK RAUCHFUSS, Mgr.

KANSAS CITY.—On account of the extremely dry weather the honey-flow has stopped; but there is still quite a surplus of new comb honey on the market. Strictly No. 1 white comb honey, 24-section cases, is selling at \$3.00 to \$3.25 per case; No. 1 amber comb honey at \$2.85, and No. 2 amber comb honey at \$2.70. Strictly fancy white extracted honey is selling at 8 to 8½, with a good demand. The demand for comb honey is still only fairly good.

C. C. CLEMONS PRODUCE CO.

Kansas City, Aug. 15.

PHOENIX.—The bulk of our alfalfa and light-amber honey has been moved at 5½ to 5¾ cts. per lb., on board cars, with a dollar rate to common eastern points. Mesquite was a very light crop, but of excellent quality and would have sold readily at \$6.50 F. O. B. had there been a carload at any given point. Some 10 cars of light amber have been sold up to date at from 5½ to 5¾. Beeswax brings 26 to 27 cents here. At present the indications are favorable for a good fall crop.

Phoenix, Aug. 23.

WM. LOSSING.

CHICAGO.—The new honey from the harvest of 1916 is appearing on the market. No sales have been reported. Comb is being held at 13 cts. per lb. for the best grade. Owing to the warm weather that has prevailed during the past four weeks, that would have a tendency to prevent any activity, so that at this time it is difficult to diagnose the conditions, especially as to what the price is going to be this coming month. Yet indications are that there is not going to be much, if any, advance over that which has prevailed for the product of 1915, a goodly quantity of which is yet unmarketed. Extracted also remains quiet at from 7 to 8; white and ambers, from 5 to 7. Beeswax is steady at from 28 to 30, according to color and cleanliness.

Chicago, Aug. 17.

R. A. BURNETT & CO.

BANKING BY MAIL AT 4%

Safety and Convenience

Among the advantages that modern methods of safe transportation have brought to the homes of the people in all parts of the country, none is of more genuine value than Banking by Mail.

No matter where you live you can obtain safety, privacy, and liberal interest for your funds by depositing them with this strong bank.

Money can be sent by postoffice or express money order, check, draft, or the currency in a registered letter. \$1.00 will open an account.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

FORCED TO SELL.....

Forty colonies of bees in Buckeye hives, in good condition; supers full white-clover honey; unextracted; full equipment; Root automatic extractor No. 27 BP. Will consider letting out on shares to an experienced beekeeper. Write for particulars.

H. C. Young, 77 Ea. Seneca St., Buffalo, N. Y.

I have been reading GLEANINGS since 1898. An old subscriber boarded with me who took GLEANINGS when Blue Eyes was born, and he received a year's subscription free that year. He had every copy in book form. The highest praise I can send you is, each one grew better.

Star, Oklahoma.

MRS. ONA FOLIART.

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted----

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

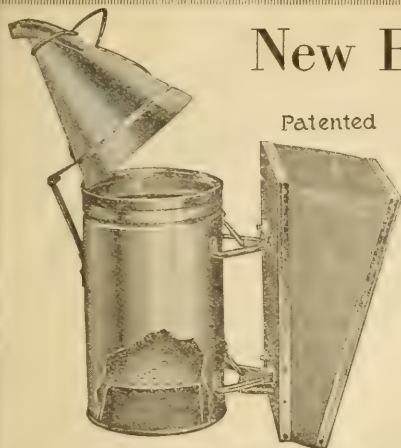
Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

New Bingham Bee Smoker

Patented



has been on the market nearly forty years, and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

Smoke Engine, 4-inch stove..... \$1.25
 Doctor, 3 1/2-inch stove 85
 Two above sizes in copper, 50 cts. extra.
 Conqueror, 3-inch stove 75
 Little Wonder, 2 1/2-inch stove 50
 Hinged cover on two larger sizes. Postage extra.

TIN HONEY-CANS---LOW PRICES

Five-pound friction-top pails, lots of 50 at \$2.75; 100 lots, \$5.20; crates of 203 at \$10.00.

Ten-pound Friction-top pails, lots of 50 at \$4.00; 100 lots, \$7.50; crates of 113 at \$8.30; 565 at \$40.00, F. O. B. Chicago.

Sixty-pound cans, two in a case, 70c per case. Quantity lots, 67c per case; crates of 50 at \$12.00, F. O. B. Chicago or Ohio factory. Prompt shipments are being made at this time.

A. G. WOODMAN COMPANY, Grand Rapids, Michigan

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

**Buyers and Sellers
of Honey and Wax**

Write Us for Prices when in the Market

COLORED BEE-HIVE LABELS



For tacking on to the hives as an aid to the better control of your bees; very durable, visible and attractive. Approved by large, practical bee-raisers. Circular and samples free.

Arthur P. Spiller, Dept. G, Beverly, Mass.

BEE SUPPLIES

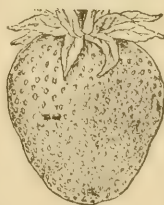
Send your name for new 1916 catalog.

**Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.**

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey



4 MONTHS FOR 10¢ Trial Subscription

To Fruit and Garden Paper

Tells about planning, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions,

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

PATENTS

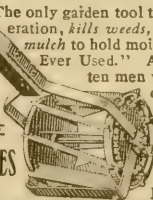
Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

**Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.**

3 Garden Tools in 1 The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

SEE
THE
KNIVES



**Barker Mfg. Co.
Box 117 David City, Nebr.**

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

ADVERTISING RATES

Based on 20,000 circulation guaranteed.

Display, per agate line, flat, 15 cts.

Quarter page, \$8.00.

Half page, \$15.00.

Full page, \$30.00.

Outside back cover page, 25 per cent additional.

Special and guaranteed positions, 25 per cent to 50 per cent additional.

Classified, per counted line, flat 25 cts.

(Discounts on classified advertising: 10 per cent on 6 continuous insertions; 15 per cent on 12 continuous insertions; 25 per cent on 24 continuous insertions.)

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

Copy subject to editorial approval.

SIZE AND MAKE-UP

Column width, 14½ ems (2⅜ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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Wanted---Honey

Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

We Were Kept Busy During

July --- and No Mistake about That

All during the month were only at the most three days behind in filling orders. Are now caught up and ready for orders for shipping-cases. If you will be in need of these better get your order in early.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Nominated by Acclamation Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who "has been at it" for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect. Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburt, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

SEPTEMBER 1, 1916

NO. 17

EDITORIAL

THE beekeepers of Iowa are requested to write to Frank C. Pellett, Atlantic, Ia., or to the A. I. Root Co., Des Moines, for a copy of the inspector's report for 1915.

FIELD meets are getting to be quite the fashion nowadays. In former days there were no meetings of beekeepers except during the winter; and now it is quite the fashion to have summer meetings also. It is well.

The Alexander-House-Miller Plan for Curing European Foul Brood Indorsed

MR. R. F. HOLTERMANN, in this issue, page 801, introduces a letter from P. W. Stahlman, of West Berne, N. Y., that details a long and varied experience with European foul brood. This letter serves to confirm the findings of E. W. Alexander, S. D. House, and Dr. C. C. Miller on the nature and treatment of this disease.

The Bee King of Honolulu

WE are glad to make the acquaintance of Mr. Oswald St. John Gilbert, one of the most extensive honey-producers in the world, the "bee king" of Honolulu, and manager of the Sandwich Islands Honey Co. See page 795. Our readers will take pleasure in learning something about this producer. It was with no little pride that we noted that he made his start with the A B C and X Y Z of Bee Culture as his sole guide.

Importance of Marking the Net Weight on Honey Packages in some States

WE have stated in these columns that while it was not absolutely necessary to mark the net weight on honey-packages, provided the goods are not to be shipped out of the state, and provided, of course,

there was no net-weight law within the state, some states have laws based on the federal law, and some beekeepers are going to run a great risk unless they mark all their sections with the minimum net weight. See what Frank C. Pellett, state bee inspector of Iowa, says:

It would seem that your editorials on the net-weight law are plain enough. However, several Iowa beekeepers have been misled into believing that they do not have to mark the net weight on packages sold at home, but only on those shipped out of the state. You will confer a favor upon your Iowa readers by calling their attention to the fact that the Iowa law is copied after the federal law, and that it is necessary to mark every section of honey as well as every package of the extracted honey with the net weight, even tho it is sold to the next-door neighbor. I understand that similar laws have been enacted in several other states.

Many Iowa beekeepers are laying themselves liable to prosecution because of their neglect to comply with the law in this respect. The fact that laws are not similar in all states has led to much confusion.

FRANK C. PELLETT.

Atlantic, Iowa.

As no one knows whether his honey will be shipped out of the state, he should mark the net weight on the packages, whether there is a law in his own state or not. It is the only safe thing to do.

Queen-bees in Danger of being Excluded from the Mails

ACCORDING to newspaper reports, Congressman Frank E. Doremus, of Detroit, has introduced a bill into the House of Representatives excluding liquor, poisonous animals, insects, and reptiles from the mails. The bill as drawn would exclude queen-bees and the dozen or so of attendants. There was probably no intention on the part of the author of the bill to ruin a large industry and seriously handicap honey-producers desirous of improving or renewing their stock. While there is but little likelihood that such a bill will pass at this session of Congress, all queen-breeders should write at once to their congressmen, requesting that the bill be modified so far

as it relates to the mailing of queens. A great majority of beekeepers would welcome the exclusion of liquor from the mails.

Competitive Civil-service Examination for Apicultural Assistants on Sept. 20

THE United States Civil Service Commission announces an open competitive examination for apicultural assistants for men only, on Sept. 20. The salaries will be \$1400 and \$1600 a year. Those interested should write to the United States Civil Service Commissioner, Washington, D. C., for particulars. These apicultural assistants are desired in connection with the extension work about to be undertaken in the South. Competitors will be examined on the following subjects:

<i>Subjects.</i>	<i>Credits.</i>
1. Practical questions	40
2. Thesis, to be delivered to the examiner on the day of the examination.....	20
3. Education and experience	40
TOTAL	100

Two years of experience with at least 100 colonies, or two years' experience in apicultural inspection, or two years' experience in teaching bee culture, are pre-requisites for the consideration of this subject.

Honey-crop Conditions and Prices

THERE is not much new to add to what we have already given on page 710 of our issue for Aug. 15. The drouth has continued, altho it was broken by some heavy rains that seemed to be quite general according to the U. S. weather maps. This drouth, however, was severe enough to check the clovers—alsike and white. Had the rains continued, the crop of clover honey would have smashed all records. As it is, it will greatly exceed last year; but the very drouth that checked the alsike and white has stimulated the second growth of red clover. When the weather is dry enough, the corolla tubes are short enough to enable the honeybee to get the nectar. In localities where red clover is grown largely, the shortage in white clover will be made up slightly of red-clover honey. There has been almost no basswood honey this year.

The reports from the West are still very meager. The few reports show the yield in the West has not been as heavy as in the East. There has been a large amount of honey, both comb and extracted, left over from last year in many of the warehouses of the commission merchants. Whether this will make up for the shortage in alfalfa

we are unable to say. Prices on mountain sage and orange honey are firm in California. On Eastern clover the prices will be easier than last year. Comb honey in general, where it is selling at all, is selling for less than last year's prices; for be it remembered there was an enormous production of comb honey in 1915, thousands of pounds of which were carried over into this year. We warned producers not to run so much to comb honey this year. It is easier and safer to carry over extracted than comb.

Early in the season the market took a regular toboggan slide; but as soon as the drouth came on in the East, and as soon as a knowledge of the shorter crop in the West became general, the market began to recover and find itself. It is apparent, however, that Eastern honey, both comb and extracted, will be lower than last year, while mountain sage, orange, and the lighter grades of alfalfa will possibly bring as good prices as last year. But Western producers should be careful not to unload too much of their honey in the East, as the markets there are well supplied with the local production. Local consumption should be encouraged as much as possible. The Eastern markets will not stand heavy Western shipments altho they will take orange and sage, all that can be furnished.

Dr. H. A. Surface; a Faithful Public Servant

FOR the last fourteen years Dr. H. A. Surface has been the efficient and energetic Economic Zoologist of Pennsylvania, with headquarters at Harrisburg. He graduated from the Ohio State University, did a large amount of post-graduate work, and then taught botany, chemistry, and other natural sciences. He finally accepted a position with the State College of Pennsylvania; later resigned and accepted the position above mentioned.

Dr. Surface, a thoroughly trained man, has been one of the most untiring workers whom it has ever been our pleasure to meet. He is a zoologist—one of the best in the country—a fruit-grower as well as beekeeper.

Here is a sample of his practical efficiency. A few years ago he bought a piece of old worn-out land near Harrisburg which everybody said was good for nothing. He saw its great possibilities in fruit-growing, and began setting out fruit-trees. After two and a half years of his skillful management the trees were yielding a basketful of peaches each, and now he is getting fruit

off the farm—immense quantities of it. The land is now worth many times its cost.

Dr. Surface, on account of his active campaign against certain commercial insecticides that are worse than useless, and because of his insistence that only fit men serve in his department, has stirred up a lot of opposition. But during this time he has also been winning the friendship of thousands of fruit-growers in his state. However, politics has apparently been having its influence. Surface is not a pliant tool. His men must be efficient and not mere vote-getters. And now this man who has done so much for the farmers and fruit-growers in Pennsylvania has been dismissed without charges being preferred and without a hearing being given him. He earnestly pleaded for a hearing, but it was denied him.

The numerous Pennsylvania newspaper clippings that have been received at this office, dealing with the dismissal of Dr. Surface, indicate that the administration has apparently made a mistake that will react.

Another man, and a good one, will soon take Dr. Surface's place, in the person of Prof. Sanders, of Wisconsin; but apparently Sanders will have nothing to say concerning the selection of his field men; and if he runs up against the politicians, as Dr. Surface has had the courage to do, he will be severely hampered.

Similar removals of officials have been made in other states. When a nursery inspector or entomologist becomes familiar with the conditions in his own state, a new man, altho equally capable, will be very seriously handicapped before he can get the run of affairs.

We hear nothing but good of Prof. Sanders. Indeed, Dr. Surface speaks of him in the highest terms. We wish him every success.

In the meantime, Dr. Surface is considering several tentative offers, but he will probably take a much-needed rest before he takes up with any of them.

The Field Meet in Tennessee

In this issue, in her regular department, Mrs. Grace Allen graphically describes some incidents connected with the meet held at her home. She did not tell the readers how royally she entertained her guests, nor about her charming personality. She is just what her writings would signify. She bubbles over with enthusiasm, and the beekeepers who were fortunate enough to meet at her home will long remember the day.

Mrs. Allen did not tell of her little apiary in the back yard; of its neat appear-

ance, of the gentle strain of Italians—how, during the whole day, not one of the bees stung a single person except, later in the day, when Mr. J. A. Buchanan was illustrating one of his stunts in introducing. Crowds mingled freely among the hives; in fact, they ate their luncheon right in the midst of the flight of the bees going to and from the entrances.

The speakers consisted of Dr. E. F. Phillips, of the Bureau of Entomology; Frank C. Pellett, of Atlantic, Iowa, who is writing for the *American Bee Journal*; Mr. J. S. Ward, foul-brood inspector of Tennessee, and who acted as presiding officer; Mr. Ben G. Davis and his father, John M., both of them extensive queen-breeders; Hon. H. K. Bryson, Commissioner of Agriculture; Mrs. Grace Allen; and E. R. Root.

The following day Dr. Phillips, Mr. Pellett, Mr. Ward, Mr. Buchanan, Mr. Drane, and Mr. Root went to Hollow Rock apiary where they were the guests of Mr. N. E. Smith. The crowd was not very large; but we spent a delightful afternoon there after which we went to Memphis. The field meet at this point was held on the fair-ground, where the persons already mentioned gave short addresses.

Mr. W. E. Drane entertained the crowd with an automobile ride around Memphis, winding up with a couple of mammoth watermelons at his home. This part of the "program" was a special success.

There are wonderful possibilities in keeping bees in Tennessee. It has a mild climate and the honey flora is varied and abundant.

Diagnosing Colonies Without Removing the Frames

MR. M. M. CUNNINGHAM, in his article in this issue, page 804, incidentally tells how he determines the condition of his colonies by merely lifting up the back end of the hive from the bottom-board, and looking up under the frames. Some years ago, it will be remembered by our older readers, the editor told how he managed to go thru one of our outyards one season with very little manipulation of the frames. The condition of each colony was determined by the flight of bees at the entrance and by tilting up the brood-chambers or supers and looking up under. We not only kept down swarming but produced a fine crop of honey. The visits to the yard were made on the bicycle, and only about half an hour or an hour was consumed at a time. These external examinations enabled us to determine about all we desired to know.

The flying at the entrance of any colony indicated whether they needed more room. If "hefting" at the back end of the hive confirmed the entrance diagnosis, super room was added in the form of a half-depth extracting-super. If the colony showed that it was not doing much, the brood-nest was opened up and the frames examined. A failing or missing queen was noted, and the colony was put in condition to build up.

The number of flying bees going into an entrance of a beehive will determine pretty accurately whether a colony needs more room. If there are only a few bees the colony may be weak. If there are only one or two bees at the entrance the colony needs an internal examination. One comb will often show the cause and suggest the remedy. Of course, one must not be confused by the playspells of bees.

If bee disease is found an examination of every comb is essential.

There were scarcely half a dozen colonies out of an apiary of some 80 odd whose brood-nests had been examined the entire season, and yet we believe no yard since has ever received any better care.

The ordinary beginner will not be able to make these external examinations; but as he grows in experience he will be able to determine a good deal by the flight of the bees at the entrances, and by hefting, as already described.

The late James Heddon placed a great deal of emphasis on the possibility of determining the condition of his shallow-brood-chamber colonies without handling frames. He urged that it was not necessary to handle frames to any great extent; that most of the work could be done by looking up between the combs; and to a great extent he was right.

We venture to say that some of the most extensive honey-producers today depend largely on these external examinations in order to save time. Mr. Cunningham is the only one to make any specific mention of it for some time.

The Eating Quality of Comb Honey Built from Starters or Full Sheets

IN this issue, one of our correspondents, Mr. Friedman Greiner, page 793, while preferring to use full sheets of foundation in sections from a money-making point of view, yet indorsing the sentiment of the late W. Z. Hutchinson, thinks he would prefer for his own eating combs naturally built without foundation.

Some years ago we conducted some quite

extensive experiments under the direction of Mr. E. B. Weed, of Weed foundation fame. We proved conclusively, or thought we did at the time, that comb honey built from a very narrow starter would actually have more wax to the cubic inch of honey than the same article built from a *full sheet* of thin-super foundation. This was not a mere guess, for it was tested out by Mr. Weed by actual weighing. As a general thing bees will build drone or store comb, when sections are being built on the hive, if they do not have full sheets of foundation in the sections.

Mr. Weed also discovered that even when bees built all worker comb, without foundation and with, the difference between the two was so slight that it could not be detected in eating. There are times, however, when one comb will be softer and more pliable than another; and if one should happen to get hold of a naturally built comb and bite into it he would conclude that it was certainly softer than combs that at other times were built from full sheets of foundation.

This would be an interesting experiment to try out on some field day. Sections should be prepared in advance, built without foundation and with full sheets. In the former case it would be permissible to use a very narrow starter in order to get the bees started right. If both these sets of sections when filled were exposed to the same temperature for a few hours before being eaten, we venture the prediction that the committee, after eating one and then the other, would not be able to tell one section from another.

The results of exhaustive experiments, some years ago, and which have been given in several editions of the A B C and X Y Z of Bee Culture, have convinced us that it is not only good business policy to use full sheets, but that the consumer is actually favored, because worker combs built from thin sheets of foundation have less midrib and less wax than the ordinary drone comb without foundation.

We suggest that, if Mr. Greiner will take a piece of naturally built *drone* comb and a piece of worker comb built from a full sheet of thin foundation, and fill both with plaster of Paris, he will find that, on hardening, the cross-sections will show more wax to the naked eye in the former than in the worker comb built from thin super foundation. We have in our office today plaster-cast samples of both. In some of the old editions of the A B C and X Y Z of Bee Culture appear actual photos in half-tones showing these casts.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



M. H. HUNT writes: "On page 427, GLEANINGS, June 1, you say it is unfortunate that raising the brood to stop swarming cannot be worked with comb honey. I have done it for 20 years with comb honey, using a ventilated bee-escape board on top of the sections. The ventilation allows the heat to pass up, and the brood hatches and passes down."

"It is no use," says a British authority, "trying to prevent drone-rearing by cutting out drone brood, as the bees will only build drone comb again." It is true, the bees will again build drone comb, but is there not still some use in it? For if drone comb be cut out at least once every three weeks, no drones will ever come to maturity, and we save all they would eat. Of course, the better thing is to plug the holes with worker comb or worker foundation.

WESLEY FOSTER, you say, p. 652, you don't like honey in your hot drink. I don't like it as well as sugar, either, at least most honey. But just to please me I wish you'd use honey anyhow. I'd like to have you live longer. Pick around and try to find some honey less objectionable to your taste. Some honey I can't endure in hot drink. For a time I bought Colorado alfalfa, as having mildest flavor; but the last I got was too strong, and white-clover honey is now my staple.

I WANTED eggs and larvæ in soft new comb, for queen-cells, from No. 67. July 17 I gave it an empty frame, not a starter of any kind in it. July 25 I found worker and drone comb built in it, some honey, and a good many worker-cells just started, but not a larva nor an egg in the frame. I left it so, at the same time giving an old black brood-comb, containing no brood of any kind. Aug. 2 I found the new comb as before, plenty of cells that looked as if they might be inviting to the queen, and not a larva or egg in the frame, while the black comb was well occupied with eggs and larvæ. Now, some of you people—nice, respectable people—people that I like, please reconcile the foregoing with the statement that your queens show a preference for new comb while my queens, other things being equal, always prefer old comb.

DECIDEDLY interesting is J. E. Hand's analysis of the swarming problem, p. 599. There seems no little to support his view, that diminished fertility causes the building

of cells, cells cause swarming, an open cell does not cause swarming because "an open cell is not an element of antagonism," and a closed cell causes swarming because "a capped queen-cell is an element of antagonism to a vigorous queen." But some troublesome questions arise. If a sealed cell is necessary to cause swarming, how is it that I've known many cases in which cells were persistently destroyed and the bees swarmed without waiting for cells to be sealed, in some cases swarming with only eggs in queen-cells? And if diminished fertility on the part of the queen is a necessary factor in swarming, how is it that I have known colonies to swarm with a vigorous queen not a month old, said queen being introduced while the swarming fever was on? The important thing, however, is the practice resulting from the theory, and in that Mr. Hand is solid: Requeen "before the zenith of fertility merges into broodiness." Yet it must be confessed there are objections to carrying out that practice in all cases.

PROF. BALDWIN, as I was reading what you say, p. 525, about introducing a queen by daubing her with honey, I said, "But don't you know that's more than 50 years old, and long ago laid aside?" Then as I read on about "half a teacupful of honey" it began to look as if you had something different from the old formula, which was merely to daub the queen with honey taken from her new home. Now suppose you tell us minutely just what you do, for success and failure often depend on apparent trifles. [The honey method of introducing was dropped years ago because it was noticed that, after the queen was laying, she looked as if she had been thru a period of smothering. Her body would look sleek, and she would look for all the world like some bees that had been nearly smothered to death. The general consensus of opinion at the time was that, while this plan was sometimes successful, it often and generally resulted in injury to the queen. The fact that such queen might die at a time when she could least be spared, during mid-winter or early spring, and that the colony would then be hopelessly queenless, made it unadvisable at the time to recommend the method. Prof. Baldwin, however, is usually careful, and he doubtless has eliminated the objectionable feature. If the queens introduced as he recommends look fresh and not as if they had been greased up, it is probably all right.—ED.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



The very loveliest thing in all GLEANINGS is on page 619. July 15. No, I'm not going to tell, it's so worth your while to look.

The magnificent swarm that pours out so splendidly in the bright noon of May or June is one thing; and the little ornery, pesky (yes, I am choosing my words with the daintiest deliberation), measly swarm, no bigger than your fist that slips out at five o'clock some August evening is quite another. The first one is worthy a chapter in Maeterlinck; the other—well, one chooses one's words—and wishes one needn't!

Those June rains caused the clover to hold on a little longer than usual, and the bees had made a fair start in the supers again after extracting, when now along comes a flow (?) of honey-dew which is being stored generously in both brood-chambers and supers. It is interesting to notice how early the bees start out after it in the morning. It is all very well for wintering on, down here, but we don't want any left over in the supers.

I am greatly interested in Mr. Arthur C. Miller's article, "The Cost of Honey Production," page 591, July 15. This is something that undoubtedly most beemen are not sufficiently accurate about. Mr. Miller's article seems to me very thoughtful and concise in its presentation of estimates that are practical and definite. As to the accuracy of the figures—who speaks first? We are keeping our own accounts very carefully; but, being mere backlotterers, they are no especial value in such a case. Some day we shall be able to pass more intelligent judgment on that annual per-colony expenditure of \$2.75. At the present writing, it impresses me favorably—that is, when no time is spent except for work actually necessary, which is, of course, what Mr. Miller refers to. He was not attempting to estimate either the time or the value of the time some of us backlotterers spend per colony per year!

THE NASHVILLE MEETING.

It is certainly a delightful experience to meet people whom we have long known by name and have admired greatly. On August 9 it was the great privilege of the beekeepers about Nashville to meet Mr. E. R. Root,

Dr. Phillips, and Mr. Frank Pellett—a privilege we appreciated greatly, for we did thoroly enjoy our distinguished guests. May they come again and often—Tennessee and Tennessee beekeepers will always welcome them. My personal pleasure in these new acquaintances was particularly keen, and, in the case of Mr. Root, it seemed a bit like meeting a member of the family I'd not chanced to be thrown with before. It is nice to come to know the editor, especially when he turns out to be just what the letters from his office (even those he doesn't write himself) would suggest—a pleasant, friendly, courteous gentleman.

We did have a good time that day. "if I do say it myself as shouldn't." At any rate, the hostess did, even tho the weather did force her to pack her forty or more guests rather closely on the narrow porch all the morning, and even tho the prosy market-wagon did stop in front of her gate and announce itself with a shrill whistle right in the middle of a speech ("Nothing today," she called. "Gitap!" the driver exclaimed, when he saw the crowd); even tho, when called on unexpectedly for a talk, her embarrassed wits went scattering till not even one poor little wit would come back to help her thru her stammering; even tho the lurch, lazily ordered out from town, didn't come, and didn't and didn't (fortunately, it finally did); and even tho the nearly serious climax of the comic came the next day, when one section of the porch rail, graced all Wednesday morning by several prominent beekeepers, swayed out into space when she sat on it, and with a sort of last-straw-on-the-camel's-back air gave way utterly, depositing her none too gently in an ignominious and almost unconscious heap among the vines at the foot of the porch, and then, promptly banging down on top of her, so that the firemen came rushing dramatically across from the other side of the street to lift off the debris and help her into the house in their best rescue manner. But "for a' that," she did enjoy her guests greatly, from the least amateur, whoever he may have been, to the most important gentleman who sat on the porch rail; and she hopes that if ever any one of them comes this way again he will call up the telephone by the front window and say, "I'm coming out." He may be sure of a hearty welcome, a sandwich, and a cup of tea, or a cracker and a bit of honey, and plenty of talk about bees. Won't you all come back?

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Mr. Editor, in your footnote, page 585, July 15, you say that if Dr. Miller is right, "does it not argue that it is an advantage to produce both comb and extracted honey in the same yard?" I am not sure as to producing comb honey in an extracting-yard, but I am sure that it pays to use extracting-combs in connection with the production of comb honey.

SIMILARITY OF THE TWO DISEASES.

Inspector M. J. Meeker, of San Bernardino County, informs me that American foul brood seems to be more of an aggressor than the European variety (black brood) this season, with the two converging apparently in some instances. The American caused the "big scare" among beekeepers a few years ago, but now in this section the other kind seems to be more dreaded. He advises the adding of sealed brood in abundance to check the latter, caging the queen when necessary. He always encourages Italian stock. Mr. Meeker is emphatic as to Italianizing to cure the disease.

In a recent conversation with Mr. George W. Dixon, of Beaumont, he mentioned the similarity of the American and European types, but his description of the converging lines caused me to believe that the American form is mistaken for the European before it has reached the ropy, coffee-colored state of the last stages. Mr. Dixon did not claim that European foul brood is often sealed, but that the larvae of sealed cells at first do not appear as being infected with American; but later there could be no doubt about the matter. It is a well-known fact that, even with American, the brood when it first succumbs to the disease has not reached the stage where it is but a ropy mass in the bottom of the cell, but is nothing more nor less than a dead larva. Later it degenerates into a mass of ropy filth in the bottom of the cells. This may in a way explain something of the converging lines, which are in reality only mistaken symptoms. Of course there may be cases where the germs of the two diseases are vying with each other for the victim.

POISONING SKUNKS.

Skunks having begun their annual onslaught upon my Treemont yard I decided

to give them their usual feast of strychnine, which, as a rule, puts such a check to their operations that the bees are relieved at once. As I have before mentioned, I use small chunks of fresh beef in which the poison is well hidden. This is necessary, as it is not eaten readily if left on the surface so it may be tasted. All undevoured pieces should be taken up the following morning if there are domestic animals that might get hold of it.

But I started to relate a little experience. On the evening of July 22 my twelve-year-old son Ralph and I made preparations for a journey to the ranch for the express purpose of putting out some poison. It was quite late when we arrived, but we prepared the poison, lighted a lamp, and started to distribute the dope. We soon discovered that the bees were on the war-path at any noise that chanced to pass the hive, having been made so by being irritated so much by skunks. We were obliged to abandon the light; but as it was not yet extremely dark we continued to distribute the poisoned meat. We had traveled not more than a third the distance of the length of the yard when to my horror I found I was standing face to face with a large skunk. Well, as a rule I am not much of a coward; but I shall have to admit that these skunks have got me "bluffed" from the start. There I stood gasping for breath in a manner that left no doubt about my emotions; but I made no move, neither did the intruder. I was afraid I might draw forth some of its abundance of perfume, but I finally got up courage enough to pick up a rock to throw at it. My moving seemed to give it a spell of fear, and it dodged under the honey-house. It is safe to say that I left it undisturbed. When we reached the upper end of the yard we ran on to the second one; but it did not tarry long, to my great delight. Before we got back to the bunk-house we saw the third one. We retired for the night, and such a night as it was! I had some difficulty in getting to sleep, and it was near midnight when I finally lost myself; but it was not many minutes before I found myself again. About that time it seemed that all of the skunks in the country were giving me a smell of their perfumery, and sleep for the rest of the night was out of the question. Poison causes such distress in some cases that the odor is released, while in others it acts so quickly the result is the reverse.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



ONTARIO HAS A FINE CROP OF HONEY.

I should not be surprised if the crop of clover honey would turn out to be one of the largest ever produced in the Province. As to the quality, a better honey has never been produced—color, body, and flavor being considered, and that is claiming quite a lot, as this province has produced some good honey in past years. Never has there been a better opportunity to popularize further the use of good extracted honey than the present time, for along with the keenest demand ever known for our product we have the finest of honey to supply the consumers. Why such a demand? Simply because of the high price of sugar and the greatest shortage in the fruit crop of all kinds, nearly, that we have had for many years. In my Notes for Aug. 1 I stated that much depended on whether the public looked upon honey as merely a luxury or as a food in determining the matter of prices; and judging by the way our telephone rings so frequently, callers asking to be supplied with from 60 to 200 pounds each, the fact seems evident that they consider honey a real necessity, and there need be no worry about the present good crop not being disposed of at fair prices. In our own case, at least, we are already to the point when we are considering refusing local orders in order to supply a number of customers in the West who annually expect to be supplied. "It is an ill wind that blows nobody good;" and while we are sorry the fruit-growers have such a poor crop, still we should rejoice that we happen to have a good crop of honey to help take the place of their product for this year.

While the crop has been good indeed, present indications for our own locality, at least, would make it appear that quite likely next year's crop is included in the present one, as the prolonged drouth is playing havoc with the clover. Buckwheat will be almost if not quite a total failure from the same cause, so considerable feeding will be in order later on. However, the brood-nests are the heaviest I have ever known at the close of a good flow; so, after all, the sugar-bill may not be excessive.

WHAT SHALL THE PRICE BE?

August 14, and as yet no report has come to beekeepers as to prices recommended for the season. This is no criticism of the

committee who have this work in charge, as the season was late, and doubtless it has been impossible to get the statistics necessary to form a reliable estimate of the crop at an earlier date. At the same time, a delayed report has its disadvantages in some ways, as many have chances to sell early in the season and have to use their own judgment as to what price to ask. In our own case, three-quarters of the crop was sold while still on the hives. What should we do in a case of this kind—wait for the report, or sell when the buyer was asking for the crop? Quite a problem to decide, surely; and when one has the chance of a good sale, taking tons at once, the temptation is strong to make a deal. However, the report coming later, helps to steady the market, and assists those who have not already sold their crop, this class no doubt being in the majority among the beekeepers.

STAY BY THE JOB.

If there is anything to be made in any business, the man who stays with the job is the one who will win out in the end. The truth of the foregoing was forcibly brought to my mind a few days ago when motoring home from the north yard, 90 miles away. Stopping for a few minutes to call on a friend I asked him what kind of crop a beekeeper had who lived just a short distance away. Imagine my surprise to learn that the beekeeper sold out all his bees last spring. Asking the reason why, I was told that, following the big crop of 1913, the two poor years of 1914 and '15 had discouraged him, and he had decided to sell. If he had held on to the bees this year in that same locality, he could have successfully weathered two more years of failure—a thing that is not likely to occur, for that matter.

Frequently I have remarked that if the virtue of patience is more necessary to any one class of people than to others, beekeepers are the needy ones, and the illustration just given once more proves this to be correct. Beekeeping is not a "get-rich quick" game, and the men who take up the calling expecting anything like that will surely be disappointed and disgusted in the end, while on the other hand the one who is adapted to the business, has lots of patience and "sticktoitiveness" to help tide over the poor seasons that are sure to come, stands at least as much chance at making a comfortable living, and perhaps a bit more, as those engaged in any other rural pursuit.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



CARBOLIZED CLOTHS.

J. A. Green's article on freeing bees from supers is very interesting. My experience with using carbolized cloths is rather limited, but I look at it this way: During the honey-flow the bees may be smoked out as rapidly as they can be run out with the carbolized cloths. At the end of the season, when the weather is cool, the escapes will do the work far more satisfactorily. In fact, it is practically impossible to remove bees with carbolized cloths when the weather is cool. Bee-escapes have worked well with me, and it does not take more than twelve hours when not to exceed three supers are piled up on an escape. I am going to try carbolized cloths again, following pointers learned from Mr. Green's article.

* * *

THE CROP AND MARKET.

The honey crop is pretty well accounted for in the Rocky Mountain region now; and while the bees are still gathering (Aug. 12), little is being done in the supers except finishing. The total crop for the West will not be large—nothing like 1913, but probably near last season's crop. It is better in places than last season's crop and poorer in others. The drouth in July cut the crop in Colorado fully fifty per cent, and the cool spring in Idaho made things turn out unsatisfactorily there. One and a half cases of comb honey per colony is about the average yield in some districts, and much less than that in parts of Idaho. Probably a few small areas will show higher averages. The demand for comb honey has not been brisk, as the white-clover crop has supplied the early market. The local demand for extracted honey has been good; and with a little more work the home market will absorb a large part of our crop.

* * *

GRADING COMB HONEY.

It is easy to grade comb honey so that it will comply with almost any grading rules if a few simple rules are followed. 1. Pack all sections of like color, weight, and finish together. Recognize that general poor appearance will consign a section to the cull class, even tho there may be little said in the grading rules applicable to that special

case. In packing, the lower grades require more cases to receive the various colors and weights than the higher grades. Three cases will generally accommodate the No. 2 grade; two cases for the No. 1 and two cases for the fancy grade. Learn to decide in a second or two just where each section of honey goes as you pick it up. It will soon become necessary to weigh but very few sections of honey unless you are stamping the exact weight on each section.

In polishing comb-honey sections a steel putty-knife, a piece of glass, or sharp-edged piece of steel will do the work necessary without the dust injuring the surface of the comb the way the polishing-machines do it. The manner of producing the honey is quite an item also.

* * *

SUPERING AND DESUPERING.

Early in the season the beekeeper is concerned with getting the bees into the supers; later he concerns himself with the problem of how to super; still later he is perplexed to know how to desuper his colonies. If spring work has been done properly, and the season is favorable, it is easy to get the bees into the supers if you have eight-frame hives. Here in Colorado it is far easier to secure a crop of comb honey from an eight-frame than from a ten-frame colony. Colonies may be forced to super work by lifting the body from the bottom-board an inch or by the use of bait combs.

In supering, it is rare that a season is so favorable that lifting supers and placing empties beneath is advisable. This season, all (or practically all) supers have been placed on top, and even at that there are some ten and eleven ounce sections. Full top starters and bottom starters are used too. Comb honey is removed when supers are four-fifths finished, and the unfinished sections are returned.

At the wane of the flow the bees are crowded down to what they can finish. When the hives are "skinned" of supers two combs are removed from each, and empty drawn combs are inserted in the brood-nest to induce more brooding for winter bees of youth and vigor. We have more trouble here with too much honey in the hive than too little; but we save combs for use in feeding too. One way that is a good one is to have shallow extracting-combs to put on when the season wanes. These may be left on the hives all winter.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



TWO SIDES.

A correspondent writes: "Would not the beekeepers be better off without so many useless middlemen who style themselves 'dealers'? Are they not living without effort off of the real producers of honey? They add nothing to the real wealth of society. They merely transfer things from the place of production to the place of demand."

There is an old story about two men who stood on the opposite sides of a signboard which read on one side so many miles to A, and on the other side so many miles to B. The first man read from his side, and the other disputed him in no good-natured terms, reading from his side to prove the first wrong. This resulted in their leaving the sign and pounding each other till both were exhausted. On getting breath they returned to the sign, but happened to exchange places at the sign. This resulted in a good-natured shaking of hands, with the exclamation, "What fools we have been!"

Is our questioner sure that to "transfer things from the place of production to the place of demand" plays no important part for the beekeeper? What is production, any way? and who are the producers of wealth? Take honey for an illustration. When does production begin, and where does it end? Are the bees the producers, or is the man who manipulates the bees the chief and only factor in the production of honey? When is production completed, or when does the act of production cease and that of consumption begin? Evidently, production ceases when the honey is in the hands of the consumer, and not before. If this be true, and it seems to be so, then every man who aids in bringing honey in a suitable form to the consumer should be considered a producer.

Not only this, but the man who helps create a desire for our honey is a factor in its production—very little less so than the man who owns and manipulates the bees. Wealth is whatever satisfies human desires; and if no one desired honey, then it would have no value; and the placing it on the market would not be real production, or, to say the least, would be useless production. Production, then, in the broadest sense of the word, means gathering into a suitable form for use, and placing before those who have a desire for that special article the product in such a form as will

satisfy the desire. But this, if I see correctly, is not all, for there must first be created a desire for any article before there can be any benefit derived from placing it before the one who is expected to consume it. The one who creates a desire adds as much real value to an article as the bees or the man who manipulates them, where that article is honey. Whoever checks this natural movement of trade, or forms a combination with his fellowmen to restrain or control it, is a traitor to society. All legitimate trade is production. A combination or trust to produce a monopoly is robbery.

The question then is, Does the dealer or middleman check the natural movement of trade in honey? Does he form a trust or monopoly to hold up the legitimate desire for our product? Is he not rather of value because he brings our goods to the point of consumption at a less cost than could be done by the beekeeper or the consumer? Have not the dealers in the past been prime movers in creating a desire for the honey the beekeepers have produced? If so, the dealer cannot be considered a useless idler by any means. The real idler is the man who has no trade at all—the man who thinks society owes him a living and is all out of joint because he does not get it. On the other hand, the man or woman who has created any new desire in any part of the world for our products from the bees is as much a producer as the man who brought the alfalfa and alsike clover into the parts of the United States where they were not known 50 and 75 years ago, to the nearly doubling of our honey crop in very much of the territory of our country.

Another thing that none of our beekeepers seem to have thought of. Suppose we could do away with all of these "useless middlemen," so that they could not get any commission on the handling of our honey. What then? What occupation must they take up in order to become producers? Must they all go to keeping bees? If they did, what would be the consequences to the beekeepers of the United States? If every drummer would quit the road, every dealer cease to buy and sell, every so-called "worthless middleman" stop his trade and barter, and all in one mass begin investigating the wonders of the hive, and become "producers," according to the ideas of most of those who proclaim on this subject, where would be found a market for the products of their labor and ours?

GENERAL CORRESPONDENCE

CURES AND IMMUNITY OF THE ISLE OF WIGHT DISEASE

BY GEO. W. BULLAMORE

"Labor in vain and lost cash" is the usual result of attempts to cure bee diseases by means of drugs; nor do I think we are justified in hoping for any other result. The physician has attained some success in the treatment of human ailments; but the drugs administered are usually for the alleviation of the more distressing symptoms. Careful nursing and dieting then bring about the cure. In a few diseases, drugs, such as certain compounds of arsenic, have a direct effect on the cause; but for successfully stamping out an epidemic it is necessary to resort to methods for the prevention of contagion.

The sudden death in winter of a large number of stocks which were packed down in the autumn in apparently good condition after producing surplus is a symptom of the Isle of Wight disease which does not offer opportunities for treatment. At certain times, however, bees are to be seen crawling with the bowel heavily laden with pollen residues. Attempts are often made to treat this manifestation of disease by means of aperient medicines administered in sugar syrup. Sometimes success is claimed; but we know very little about the action of drugs on insects, and it is not unlikely that the result would have been the same had the drug been omitted from the syrup. A natural honey-flow may also bring about the cessation of crawling. When syrup or dilute honey is being administered to the bees, excess of liquid is often passed off thru the intestines. When nectar is being gathered, some of the water finds its way to the bowel. The resultant flushing relieves the system of toxins (poisons produced by disease germs) which cause the symptom, but the disease itself remains.

All the reported cures of Isle of Wight disease appear to be records of the disappearance of this crawling symptom, and to have been brought about either by feeding with syrup or dilute honey, or by means of a sudden stoppage of brood-rearing. The giving of sulphate of iron in the food, sprinkling the combs with sulphur and other fungicides, and painting the inside of the hive with creosote, are operations known to destroy brood, and have been suggested as cures. When brood-rearing ceases suddenly, the vital drain of gland secretion from the workers is arrested; and, in addition, the excess moisture from the

food will now pass to the bowel. Crawling due to weakness and parasitic intoxication will then cease in a few days. For some such reason an apparently immune stock in an attacked apiary often proves to be queenless.

Attempts have been made to find a strain of bees that would resist Isle of Wight disease in much the same manner as the Italian race resists European foul brood. It is no test of resistance in this latter case if we merely change the queen of a foul-broody stock without allowing a period of queenlessness. Neither do we give the new race a fair trial when we requeen a stock showing the crawling symptom of Isle of Wight disease. In both cases the bees are swamped with disease from the commencement of the experiment. When Italian bees have had a fair chance I think that there is some evidence that they are the last to be affected, and that they more often recover temporarily. This suggests some slight degree of resistance rather than actual immunity; and to make the distinction clear a few lines on the nature of epidemic disease may be of use.

The breaking-up of organic matter into simpler compounds in nature is brought about by the agency of fungi, among which we include minute organisms known as bacteria. Many of the bacteria have resting forms, known as spores, which tide them over periods of adversity. Others depend for their continued existence on a continuity of food supply.

While life is present, the organic matter can resist the attacks of the majority of these bacteria (it possesses immunity), but certain forms have power to overcome the resistance of the living host, and a condition of parasitism results. Should the bacterial growth prove harmless, or should it handicap the host but slightly, the relationship is one of tolerance. But the growth often results in the production of poisons known as toxins, and these produce disease and death in a susceptible host. In much the same manner minute animal parasites may produce disease.

Diseases were originally much more local than they are at the present day. The result was, therefore, that the constant attack on a limited number of hosts meant the extinction of the hosts, and, in consequence, of the disease for lack of material. Other-

wise it resulted in the weeding-out of susceptible strains and the survival of those possessing tolerance or immunity. Owing to variation in this tolerance and immunity, disease might show from time to time, and in such a district the disease would be said to be *endemic*. Owing to migrations or to commerce some of these tolerant individuals reach other localities where the disease is unknown. In such a favorable field the germ is able to attack large numbers of individuals with low powers of resistance, and the result is an *epidemic*.

Now we can understand what has been happening in the bee world. Commerce and the increase of beekeeping, so that districts are now linked up by living bridges over which the disease can cross, give advantages to disease that it never before possessed. We do not know when Isle of Wight disease first issued from its endemic center, and it is quite likely that it has found a home permanently in more than one district. It is not much in evidence in dry hot summers, but will cause heavy losses during the winter. In a dry warm country where there is no wintering problem such a disease might attract no attention. In the struggle for existence, however, the more resistant bees would be favored. Unfortunately when such bees are brought to northern latitudes the winters are likely to prove fatal when the parasite is present.

The survival of certain apiaries on the Isle of Wight for several years after the other bees were dead does not appear to have been due to immunity, but, rather, to the fact that the disease did not reach them. Such apiaries disappeared quickly enough when attacked. On the same lines it is possible that the success of the Dutch bees was due to their freedom from harmful parasites when imported. They gave good results, but, like other kinds, were liable to contract disease after a time. When a district has been cleared, bees from Holland are very useful for restocking purposes; and as it is possible to obtain colonies of them the grafting of healthy queens on to moribund or doubtful stocks of native bees is avoided. Fecundity is one of their assets.

So far as I can interpret the facts, attempts at drug cures and the requeening of dying stocks can be dismissed as of no avail. The destruction of stocks showing crawling symptoms, too, has little or no effect on the spread, because the disease travels by means of the flying bees before such symptoms are manifested. To be of use the destruction of the stock in question should be accompanied by the destruction of all stocks within a radius of several miles. As this is scarcely practicable, it is advisable to avoid attempts at keeping up a dwindling apiary, but to wait till the district has been cleared of bees, and then make a fresh start with a healthy strain of bees. My preference in this direction would be for a strain of yellows with a record for longevity similar to that given by Doolittle on page 10 of GLEANINGS for this year. We can feel pretty sure that longevity and health are associated, and I always feel suspicious that the short-lived bee may be suffering from some chronic trouble which robs it of a few days of the best period of its life from the honey-producers' standpoint.

As to using the combs again, we know that infection may precede the first symptoms of disease by at least six months. We know that then the disease may disappear to terminate fatally six or nine months afterward. If we do not notice the first batch of crawling bees we may think that these bees have remained healthy for over twelve months. When bees are put on to old combs, and death takes place a year or two afterward, it may be due to reinfection; but there is an element of uncertainty about it. It is far safer to store the combs for a time at least, and reject some of the heavier, dirty, breeding-combs which afford the maximum protection to disease germs. The precaution may be unnecessary; but some of the evidence suggests ground infection, and it is, therefore, supposable that a germ may sometimes reach the combs.

A minute animal parasite, *Nosema apis*, is thought to be the cause; but diseases of this type are the most baffling with which the pathologist has to deal, and afford ample opportunity for controversy.

Albury, Herts, England.

THE HONEY-MONEY MAKERS

BY ROSE WILLIAMS.

To my way of thinking there is nothing more attractive and at the same time so remunerative as bee culture; and for the life of me I cannot understand why more people don't take it up professionally. Every

little country place should have a few colonies of bees, and big places would profit by having a full-fledged apiary.

My place is situated about three miles from a thriving city; and while I hold a



Miss Williams' apiary, Nashville, Tenn., consisting of ten colonies increased from one in three years.

position in town I enjoy my bees as a side line. I think I must have been born under the honey star, for I've always had great admiration for bees. As a child I enjoyed them on our neighbors' adjoining farm, and I grew up with the intention of having bees of my own. The fact is, when I was quite young I planted the orchard which the hives now beautify for a future beeyard; and when I finally reached that long-looked-for period I started my apiary. Under the

most imposing peach-tree I placed the first hive of bees, which I bought from a friend, and then waited for results.

I remember how excited I was when I had to deal with my first swarm; and for the inexperienced apiarist there is nothing to compare with that sensational thrill that simply envelopes one with the startling realization of the novel duty devolving upon him in hiving his first swarm. I think I can safely say that to a *real* beekeeper (I

use the word *real*, meaning thereby one who actually loves the study and work of bee culture) there is nothing more inspiring than swarming bees. Coming at a season when one is usually busiest about his place it often happens that a swarm will issue from the hive at a most inopportune time, thus testing his patience; still, when he sees the hurrying and scurrying of his pees as in a mob they scramble out of the hive, and hears the joyous note of their madly whirring



The living-board is to a hive what a porch is to a house.



The first swarm after the limb was cut from the tree.

wings as they fly swiftly about before settling in a cluster on some convenient bush or low-hanging limb, he cannot help being convinced that the occasion is a festive one for the bees, in which he is glad to join and do his part.

It seems fundamentally to be the case that swarming is caused by an overcrowded condition of the hive. In May and June, after the honey-flow is well established and the hive is full of bees, the honey-combs laden with honey and the new brood soon to hatch, the bees decide that it would be advantageous for part of the colony to leave their present home and seek new quarters; so queen-cells are built, and pro-

vision thus made to supply a new queen, for the old queen always leaves with the swarm. It is not known what determines some of the bees, usually about two-thirds of the colony, to leave while the others remain to care for and hatch the brood. But so well organized are their methods that in this as well as in all other economical questions, their procedure is based upon wonderful foresight.

In the first place the bees realize that their existence depends upon their having a queen, for the queen lays all the eggs (in the working season she lays as many as three thousand eggs a day) from which the bees are hatched. There are three kinds of bees to a hive—the great majority, known as “worker” bees, being the honey-gatherers; the queen which is ruler of the busy tribe, and a limited proportion of drones. The drones are of masculine gender, the “workers” being females. Eggs for workers and drones are unlike; but one of the queer things is that the same egg that produces a worker-bee will, if fed and nurtured in a certain way, produce a queen. Therefore the workers may decide for themselves when they wish to hatch one or more queens. With admiration I gazed upon a queen-cell, shaped somewhat like a peanut hull, and hanging down from the side of the comb. This is made by the workers to accommodate the queen’s wonderfully slender, tapering body. I also noticed drone-



Removable combs make it possible to examine the colony at any time.

cells, which are similar in shape but larger than the worker-cells.

I had examined the colony only the day before, and had seen that the queen-cells were almost ready to hatch; still I felt a thrill anyway when some one near the beeyard yelled, "Come quick! your bees are swarming!" Hurriedly adjusting my veil and gloves (for I had not then sufficient self-confidence to risk handling them without some sort of protection) I ran to the scene of action. The air seemed filled with bees darting in every direction, making the morning beautiful to me by the sunlight glints flashing from their rapidly whirling wings. They were all about me, whirling and humming, apparently with no thought of settling into the cluster I so anxiously waited for them to form. Being a novice I might have been terrified, in spite of my armor, to be in the center of such a madly rushing mass of bees had I not known that; far from being hostile, they were in the happiest frame of mind possible. I knew their honey-sacs were laden with honey in preparation for their unknown journey in quest of a new abiding-place, for they always leave their old home with true holiday spirit.

After ten or fifteen minutes of patient watching I was glad to note that they had begun to form a cluster on a peach-tree limb near by. I waited till the cluster was completed and the bees quiet. Then with black Bill's assistance I carefully cut the limb, and with cautious step carried the entire cluster to the new hive which I had previously set in a shady place. The new hive was fitted with frames of wax foundation, which, I find, saves the bees some work besides insuring straight comb, as the cells are built with mathematical precision on each side of the foundation. After reach-



60,000 bees on the march into their new home.

ing the hive safely I quickly drew up a hiving-board to the entrance, and, with a quick jerk, shook the bees upon it in front of their new home. With a soft brush I lost no time in starting the main body of the confused mass of bees toward the hive. They readily entered, for the stately queen graciously led the way. Had the queen for any reason not gone into the hive, no amount of persuasion could have caused the other bees to remain inside; instead, upon discovering her absence they would have soon returned to the parent hive, probably to swarm again within the next few days under the leadership of one of the newly hatched queens.

After the first or "primary" swarm in the spring there may be one or more swarms, known as "secondary" swarms, within a week or ten days as the young

queen's hatch. These swarms are never as large nor as enthusiastic as the first one to issue, and their number depends on the subsequent strength of the colony.

The hive that I use is an ordinary modern eight frame hive. The removable frames make it possible to examine the condition of the colony at any time. A top compartment, or "super," containing twenty-four sections in each of which is a small piece of wax foundation for a "starter," is placed upon the hive when the bees are ready to store surplus honey. These sections, each holding about a pound of honey, are easily

removed, and are ready for immediate use or sale.

I began with one hive, but within three years had increased the number to ten, which is quite enough to handle unless one makes a regular business of it.

So to the man who has room enough under a fruit-tree for a hive of bees, I say from personal experience, put one there—you will be repaid many times for your trouble, for in this day of unfaithful servants you will find a very remunerative helper and willing, conscientious workers in our friends the bees.

Nashville, Tenn.

A BANKER WHO COUNTS HIS HONEY

BY J. J. MOYERS

The photograph shows one of my eight apiaries, this one numbering fourteen colonies. On May 31 I extracted from these fourteen colonies 130 gallons of honey, leaving untouched the entire lower bodies and all the frames that contained brood in the upper supers. This honey I retailed for \$1.25 per gallon. From the cappings of this yard I extracted 9 lbs. of beeswax at 27 cents per pound, making a total income of \$164.96. My expenses were three men at \$2.00 per day, taking half a day, \$3.00; containers, \$8.40, this giving me a net profit of \$153.56.

These figures are only from the first

extracting, and I feel sure I shall be able to extract twice more before the flow is over, as the white clover (which is our principal crop) is just now at its best. I am confident that by the 25th of this month (June) my bees will be just as rich.

There is no question but that this is a great surplus for the wonderful little bees; but after noticing the white clover in the foreground of this picture, and knowing that there are hundreds of acres surrounding, it makes my statement more plausible. We are also in the center of the crimson-clover belt.

I have never seen the honey-flow better.



One of eight apiaries owned by a banker, J. J. Moyers, Fayetteville, Tenn.

It seems as if they might have a running fountain.

In 1914 and 1915 the crop was almost a complete failure in this section, causing a loss of about half of all colonies in this section, due to starvation.

After banking hours are over my spare hours are spent with the bees. For profit

and pleasure I find there is nothing better. My two observation hives, as shown in GLEANINGS, June 15, 1914, I keep at my home. They are my greatest pets. Even my baby loves them. Every beekeeper should have one or more observation hives. Ten times the worth of mine would not buy them.

Fayetteville, Tenn.

WHAT I DO ON MY ROUNDS OF THE OUTYARDS

BY MILTON C. BERRY

Twenty-five years ago I joined the beekeepers' fraternity by annexing to my small lot of boyhood possessions two old gums of black bees bought from a neighbor who kept a few bees in the old-style way. After having carefully closed up the hives with old sacks, very securely fastening all the little fellows inside, I moved them to my home near by. Gradually I acquired necessary tools such as a smoker, and later, after purchasing some dovetailed hives, I added a hive-tool, my father's old screw-driver. After this the two hives were carefully guarded. Swarms came, and the two old gums—the nucleus of a future large business—began their increase.

During the day, when not busy with the bees, I was thinking of them, and, when asleep, I remembered them in my dreams. I looked forward to the future when my two old gums of blacks should become a thousand or more beautiful Italians in up-to-date, modern hives. Well do I remember my mother saying fondly, "My boy, you certainly must have a bee in your bonnet." The mother is gone now, but my boyhood dreams have come true for I now have over a thousand colonies of virtually pure three-banded Italians.

These thousand colonies, forming nine separate yards, are located within a radius of twenty miles around my home town, Hayneville, Alabama. Eight of them I term "out" yards, and what I wish to tell my brother beekeepers is how I manage these yards so as to enable me to make from one to two solid cars of honey annually, and at the same time to ship thousands of pounds of bees.

In each of these yards I have from fifty to two hundred colonies of bees, depending upon how many each location or territory will support. I learn the right number by observation and also by test, placing a few colonies in a given location, and gradually increasing until I find just how many such territory will support. It is quite possible to have a territory which will support a

double number just during the main sweet-clover honey-flow, but one has always to figure on the spring and fall when there is a slow flow from other sources, and not a great quantity at that. If the locations were given all of the colonies which they would at times support, then during the spring and summer one would be compelled to feed large quantities of sugar syrup. Therefore I deem it expedient to locate at these different yards only as many colonies as can be supported the year around with a small cost of feeding. At all of these yards which I am running for honey production there are good houses equipped with extractors, smokers, hive-tools, etc. In fact, on arrival at one of these yards all that I have to do is to unlock the house, light the smoker, and get busy.

THE SPRING MANAGEMENT.

Either the last of February or the first of March I begin my first round, as we call it, going to each yard, examining all hives, and thus determining as to stores. If any seem to be light, and thus short of honey I take from those which have an abundance and some to spare, and give to their less fortunate relatives. In fact, the main object of this first round is to equalize stores, or feed the colonies short of stores. The next round is made about two weeks later. This time, if the weather is warm, and it usually is by March 15, I remove covers, scrape tops of frames, and, with a file bent to form a hook, I remove all burr-combs between the frames. This tool is made very easily from any old worn-out file by bending the handle so as to form a hook, which can be run down between the frames very nicely, and then drawn from front to back. The hook not only removes the burr combs, but also holds the wax so that it can be removed and placed in a box, and thus saved. By saving these small particles of wax at the end of the second round I often have from seventy-five to one hundred pounds of wax when these scrapings are rendered.

While on this round I not only clean up all hives as well as covers if they need scraping, but I note the condition of all colonies as to brood and also the condition of all queens. If any seem to be failing I mark the hives to be requeened on the next round. Entrance tins are now removed. These are what we call mouse-guards and are two inches high and six inches long, having three small sawtooth holes in them just large enough to allow two bees to squeeze in together. In the fall these are slipped in behind the regular entrance cleats, made of common plastering laths, with entrance cut about one-half inch high by four inches long. These tins keep mice from going into hives during cold winter nights and gnawing the combs containing pollen. Thus I am able to save many beautiful combs from being virtually ruined by the inroads of the well-known field mouse.

My next round comes about the first of April. This time I requeen all colonies having poor queens, and give queens to any that may have had no queen the round before. I again equalize stores.

About the middle of April I make my fourth spring round; remove cleats on all strong colonies; draw brood from the colonies that appear to be about ready to swarm, and give to weak colonies, or else elevate brood to the upper story above the queen-excluders in exchange for empty combs.

About one week later I make another trip around, and if I find any bees still inclined to swarm I elevate the brood again, and if this does not have the desired effect, and I find some queen-cells started, I elevate the hives a little at the front, and sometimes crack the covers about one-half inch to the

side. By this practice, and always seeing that all hives have plenty of room for both brood-rearing and honey-production, I seldom lose any swarms.

MANAGEMENT DURING THE HONEY-FLOW.

The main honey-flow from sweet clover is now close at hand, and my colonies are running over with bees ready for the harvest. If the clover sees fit to yield a bounteous flow in return for my labor, you may well know how I feel. I work, I almost slave, to keep ahead of the bees, elevating the full supers and placing those that have either empty combs or those partly full always just above the queen-excluder and next to the brood-chamber. At the same time I am busy extracting combs that are full and capped over. Thus I get my large crops. On the other hand, if the clover does not yield the nectar—again you may know how I feel—another long year to wait for another opportunity. So if I am blessed with a good crop of honey, I gather it; if not, I take my medicine with a smile, altho, perhaps, it may be a sickly one.

Incidentally I wish to mention that while making my rounds all colonies that show unusually good qualities for honey production and gentleness of disposition I mark and later move to my queen-yard. To all colonies having old queens I give new young mothers, and all which have not yielded returns as I believe they should I also requeen, thus preparing for the coming year.

About the last of October I make my last round, putting on entrance cleats and mouse-tins, carefully scraping covers, and seeing that they fit closely to keep out the cold winter winds.

Hayneville, Ala.

HONEY AND HONEY PRODUCTION

BY HOMER MATHEWSON

Half of my life I spent in New York, producing clover, basswood, and buckwheat honey. Since then I have visited many of the great honey-producing sections in Florida, Texas, Colorado, California, Nevada, and Utah.

There is a great contrast between New York and the tupelo region of Florida, the mesquite and horsemint of Texas, the alfalfa of Colorado, and the orange and sage of California. The alfalfa of Nevada is water-white, while that of Imperial Valley is light amber. Why the difference? Simply the heat, and perhaps a little owing to the water.

The outlook in Utah seems better than in

Colorado, where in many localities, at least, it would seem that the honey crops are diminishing, owing to the land being used for diversified crops.

The marketing methods in most places are very poor, not over a tenth of the crop being sold at home. The home market should be increased.

Speaking of disease, the successful men of today have learned how to cope with disease, and they have very little fear. There may be a few cases of bee paralysis, but far more of beekeepers' paralysis. Much is written of the eight and nine hour day. Sometimes it needs 16 hours for success.

The picture [cover illustration.—Ed.]



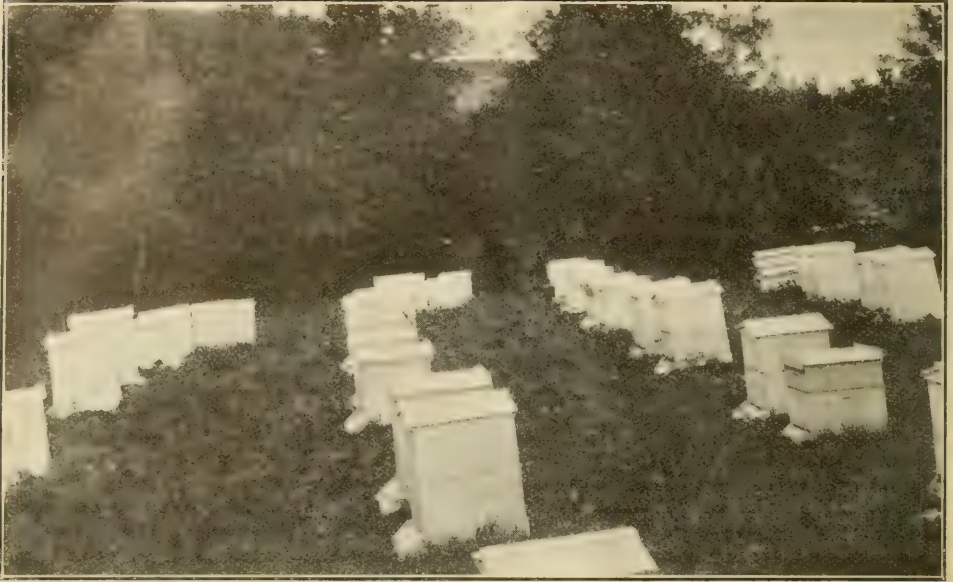
A city apiary that developed from a couple of swarms. The straw around the hives was for protection in the spring. Photographed by HOMER MATHEWSON.

shows one of the many apiaries in the San Fernando Valley, Southern California. This yard is located near Chatsworth, and is one of nine outyards owned by the California Honey Co. This apiary produces only sage honey, very little orange being within reach. A fire-brake has been plowed around the yard, but even with this protection I am informed that there was some damage done by fire the year following my visit.

These apiaries are placed where there is sage enough to make a profitable yield, the one necessary asset being water, which must be near. At a water-hole on a hot July day there may be a bushel of bees getting water at one time. An amateur might think it was a large swarm. There may be a fair crop from sage every year, yet the sage will yield only three or four large crops in ten years.



Same city yard in July. Photographed by HOMER MATHEWSON



The city apiary moved into the country for the buckwheat flow. Photographed by HOMER MATHEWSON.

EMIGRATES TO SUCCESS.

The last picture shows one of the large apiaries of Mr. Geo. B. Larinan, of Pasadena, Cal., a native of the Middle West. Mr. Larinan went to California a few years ago, settling in the San Joaquin Valley, where he commenced the keeping of bees commercially. After spending a year or more here, Mr. Larinan went to Pasadena. Mov-

ing his bees and buying more, he was able to establish two large apiaries of about 400 colonies each. These are located at Duarte, Los Angeles Co., among the orange-orchards, the bees having access to thousands of acres.

The fact that all the orange-orchards are irrigated makes possible a crop every year, altho it sometimes varies in quantity.



George B. Larinan's apiary near Pasadena, Cal., hauled by auto truck to the sage regions near Newhall, Cal., where the picture was taken. Photographed by HOMER MATHEWSON.

After the flow from the orange is over, the bees are carried by motor to the vicinity of Newhall, where they are loaded in the early evening, and in the morning they are flying among the sage 30 miles away. By moving this apiary Mr. Larinan is able to

secure a crop of honey much greater than he would if he had left the bees in the orange location. The motor truck is a great boon to the nerry beekeeper who wants the honey.
Lexington, Ky.

ARE BEES GUIDED BY SCENT OR BY SIGHT?

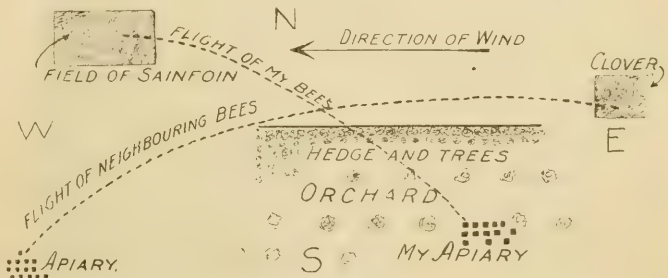
BY B. BLACKBOURNE

The editor has stated that the flight of bees is dependent on the distance they can see pasturage. I should like to suggest that scent plays an important part in helping the bees to find extensive areas of honey-producing plants. I have frequently noticed that on a windy day the perfume from certain flowers is carried for a considerable distance, and I am inclined to think that bees will follow up the "trail," so to speak, against the wind.

A year or two ago I came across a case which pointed to the above conclusion. My apiary is situated in an orchard bounded on its north side by a high hedge and a thick row of plum-trees. Beyond this the fields stretch away up hill, and three-quarters of a mile to the north-west are many acres of sainfoin upon which my bees were working. On this particular day an east wind was blowing; and as I was returning from the fields I noticed a steady stream of bees proceeding against the wind along the north side of the hedge. Being curious as to where they were going, I followed them up and found that they were working on about an acre of white clover situated at the end of the hedge about a quarter of a mile from my apiary. Now, this white clover was mixed with some other clovers and rye grass, and the actual flower-heads were mostly short and not at all thick. That is to say, they did not present a mass of white that could be seen from a distance. The bees were blacks, and must

have come from an apiary situated a mile to the west of my own. I could see that none of my bees were working on the clover, for mine were Italians and hybrids.

Now, why were not these blacks working on the sainfoin, which was much nearer to them—less than half the distance of the clover? I concluded that the scent from the clover had been carried down by the wind, while that from the sainfoin had been carried to the north of their hives. Why, then, were not my bees attracted? Either because, in order to get out of the orchard to reach the fields, they were obliged to rise high in the air to clear the hedge and trees, or else because they had previously been



working on the sainfoin for some days, tho if this latter is the reason why did not the blacks also work on it?

The whole question is an exceedingly interesting one, and also important for those engaged in commercial beekeeping; as one of the principal aids to success is in the study of one's locality.

Ramsgate, England.

[See the article by J. E. Crane, page 722, last issue.—ED.]

DRIFTING SWARMS FROM BOX HIVES

BY F. GREINER

The practice of making forced swarms by driving or drumming them out of their habitation into a box or hive placed on top is a very old one. When the straw skep was in fashion this manner of increase was

practiced to a great extent in European countries and is now. The follower of modern methods, however, scorns the idea of making forced swarms by this simple and effective method, and still it may be

practiced to advantage even by him. In some cases it seems to be the best way. I would not want to recommend the method to the up-to-date beekeeper who uses hives of the Langstroth pattern, has every comb a perfect one, easily movable, etc. He probably will make brushed or shaken swarms if such a procedure should become necessary. But when using such hives as the Heddon or Hand sectional hives, particularly when they have been occupied for a number of years by the bees, the method of driving and drumming out the swarm will prove to be as simple and successful as any other. I frequently resort to it in the management of my sectional hives.

It is not a bad practice to place the empty hive on top of the hive which is to be treated two or three days in advance, or perhaps even a week, if it is in the outyards. In the latter instance it is better to place an excluder between the occupied hive and the empty one. I have the hive which is to receive the swarm filled with comb foundation preferably, or comb. Then before I make the drive this excluder is removed. Drumming and pounding on the hive for 10 or 12 minutes sends the majority of the bees with their queen into the hive above. A little smoke given at the same time facilitates the work. I close the entrance during the operation, opening it for only a moment when applying smoke now and then. After the drive is made, the upper hive with the bees is lifted off carefully and placed on a bottom-board, when it is given the same place the mother hive had occupied. The super is given at once, perhaps two of them, according to circumstances.

The mother hive may be given a new location and a queen run in at this time. Or, if desired, a queen-cell may be substituted. If increase is not wanted, the old hive is moved back; and after three weeks' time a second drive is made, the bees added to the new colony, all the time plenty of room being provided for storing honey in the supers. The plan is practically the same as transferring according to the improved method.

The brood-chambers, now free from bees and brood, are tiered up on colonies not in the best working order. More or less honey will be stored in them, and they may come very handy in supplying winter stores to the colonies that have given the most section honey and are often lacking enough stores to carry them thru the winter safely.

WHY I NOW USE FULL SHEETS OF FOUNDATION IN SECTIONS.

Our lamented friend Hutchinson express-

ed his idea of comb foundation in section honey thus: "I would rather pay five cents more per section of honey for my own use if the comb was all built by the bees with no foundation used." This was exactly my idea, and I have produced honey, tons of it, for years, using only small foundation starters in my sections. How much more money I might have made had I used full sheets all the time would be interesting to know, but will remain a matter of speculation. I am satisfied that my bank account would have made a better showing.

What is the reason for my change of practice? In the first place, my efforts to produce a better grade of honey from the consumer's standpoint were not appreciated. My honey did not bring a better price—rather the opposite. There was a reason for buyers preferring honey built on foundation. It not only looked better, was usually built out better, and fastened to the wood more securely, but it carried much better when transported by vehicle or railroad. This last is a very important point in favor of the more inferior article.

This fact was vividly brought to my mind when I bought about 200 sections of honey from a farmer beekeeper this fall—honey which had no foundation in it except very small starters. It was fine honey; the sections were not very neat, well filled out, and well attached. I scraped it, crated it in cellular shipping-cases, and carried it home in the auto over pretty fair country roads. When I arrived home and examined the honey I found one-fifth of the combs broken out. I have carried practically all of my honey from the outyards home in the auto for two seasons, and have not broken any at all. The foundation that the boxes were filled with made all the difference. I did not feel so very bad over the mishap, for we could and did use this honey on our own table, and also sold a good part of the unbroken lot to special friends who, we knew, would appreciate a good thing. It is my aim to produce a little comb honey every year without the use of foundation. We like it very much better for our own use.

It is very difficult to arrive at definite facts as to how much more honey a colony will produce when full sheets of foundation are given over the colony given starters only. I have reason to think it is somewhere between 20 and 25 per cent. I am satisfied that it is a good investment to fill every section with foundation—extra-light section foundation—no other should be used. The cost is half a cent per section, or thereabout. If on an average we obtain 50 lbs. of comb honey per hive, the cost of

the foundation would be 25 cents; and if ten pounds of this honey is owing to the use of the foundation in full sheets, the 25 cents represent the cost of the ten pounds

gained to us. Because it is profitable to use comb foundation in sections is the second reason why I have changed my practice.

Naples, N. Y.

OSWALD ST. JOHN GILBERT, A "BEE KING"

BY LESLIE BURR

Who is the most extensive honey-producer today? How many can answer?

My acquaintance with extensive honey-producers dates from the year 1900—the

year I attended the convention of the National Beekeepers' Association at Chicago, and there met many of the extensive beekeepers of the United States. Prior to that time I had never met any person who had more than a hundred or so colonies of bees, so it was with a feeling of awe that I took my seat at the convention among men who were large honey-producers, estimating their crops each season as so many tons or carloads. Particularly do I remember W. L. Coggschall. He sat next to me during one of the sessions, and later we talked over some of the subjects that had been under discussion. Coggschall at that time was in the lime-light as the foremost practical honey-producer on a large scale.

When I met him I had a feeling that I had met one of the super-men — a man who was able to see further and go further than the ordinary mortal. Since that time I have met most of the extensive honey-producers of the United States and Cuba, but never one that gave me the feeling that my first meeting with Coggschall caused until I met Oswald

St. John Gilbert, of Honolulu, Hawaiian Islands, manager of the Sandwich Islands Honey Company.

Gilbert, even tho he is known in the



Oswald St. John Gilbert, of Honolulu, manager of the Sandwich Islands Honey Co.



Reading the record of a prize queen.

Hawaiian Islands as the "Honey King," is, like most truly great men, modest. He has always made it a rule to avoid publicity, and so for that reason his name is practically unknown to beekeepers outside of the islands.

At the present time Mr. Gilbert has on the island of Oahu about one hundred apiaries. As to number of colonies in each apiary, they will probably average up with those of the extensive beekeepers of New York and Colorado—perhaps 100 to 125.

Another thing that will, perhaps, be a surprise to those that think a hundred colonies of bees sufficient to occupy one man's attention, is that the bees are but one of several business ventures in which Oswald St. John Gilbert and his brother, Lee St. John Gilbert, are jointly interested.

I spent one entire day with Mr. Gilbert visiting a few of his many apiaries, and it was one of the most pleasant days of my life. He is a prince of good fellows, and one whose good nature always remains on top, even tho the roads are rough. He is of English parentage, born in Australia;

and so while he is not an American he is the nearest thing to one. His entry into the ranks of the honey-producers was one of those matters that just naturally happen. The particular event that was responsible occurred one Sunday morning in 1893 when the trade winds blew a stray swarm of bees into the dooryard of the Gilbert home. Lee St. John Gilbert, Oswald's brother, decided that he would hive the swarm; but these particular bees had no desire to be hived, and it was not until the operation of hiving them had been repeated six times that the bees made up their minds that they had in fact been hived, and decided to remain. Both of the Gilberts at that time were innocent of any knowledge pertaining to bees or bee culture; but after the trouble they had taken to hive this particular swarm they were determined to see what could be done with the bees. With a copy of the A B C of Bee Culture as their sole guide, and their lone swarm of bees as a foundation, the Gilbert brothers built up the greatest chain of apiaries, and the best system of apiary



Mr. Gilbert considers the gluebush a great forage-plant for stock.

management, that is to be found. Part of this system of management is the feature that puts an end to the rival beekeepers in the territory they occupy. This has been accomplished by purchasing the absolute and exclusive right to place bees in the territory they desired to make use of. On the island of Oahu they have complete control of all the island except in and about the city of Honolulu. Honolulu being a city, and having thousands of small property-holders, it would be impossible to control that territory. (In the event that any person may think of coming to Honolulu I will state that at this time the Japanese at the present time have the Honolulu territory overstocked, there being about twice as many colonies as good management would dictate.

The Hawaiian Islands, while but small patches of soil in the center of the Pacific Ocean, are the home of wealth and big business. Big corporations are the rule. In this land of big plantations, honey production was at first looked upon with amusement. To use Gilbert's own language, "For the first seven years we were the joke of Honolulu. That there could be money in honey production was beyond the wildest conception of the average islander." But such was not the prevailing opinion after the first few years had passed, and today one of the richest bankers in Honolulu is interested in honey production, and owns a large chain of apiaries on one of the islands.

Honolulu, H. I.



Nine-year-old algaroba-tree.

THREE BEE-TREES HAVING TOP VENTILATION

BY W. H. CRAWFORD

On page 1019, Dec. 15, 1915, the editor says: "For it seems to be a fundamental principle that hive entrances for colonies in winter quarters should be at the bottom, primarily to hold the warmer stratum of air that naturally rises to the top, and is confined because it cannot escape." This reminds me of three bee-trees I found in middle Texas in the spring of 1892. The first one was a Spanish oak that had been broken off six feet above the ground, having a hollow ten inches in diameter from the top to the ground. The bees entered at the top, and began to build their nest two feet below, and continued the combs to the bottom, using the opening at the top of the stump as their entrance.

The second one was a post-oak tree about the size of the first one. It had been broken off four feet from the ground, leaving a stump with a hollow four feet long and

ten inches in diameter. The bees entered at the top, and occupied the entire space.

The third was a live-oak that had been broken off twenty feet from the ground, with a hollow twenty feet long, and averaging nine inches in diameter. The bees entered this tree at the top as in the first and second, and began their nest two feet below, and had built nice straight combs seven feet long. The combs showed that the bees had occupied this place for three seasons at least. Notwithstanding this tree had an opening at the ground four inches in diameter, and one at the top six inches in diameter, thereby allowing a current of air to pass up thru the tree, and also allowing rain and snow to fall directly upon the bees, nevertheless they were a prosperous colony when I found them.

I cut this tree off below the combs, and hauled it to my apiary of twelve colonies,

and stood it up by another tree, allowing it to remain there until the colony swarmed, which it did two weeks later, on May 1. Soon after this I transferred the combs and bees from this hollow log into an eight-frame hive, filling five frames with brood and three frames with combs nearly full of honey.

The bees in all three of the trees described were healthy and prospering. No. 1 and No. 2 had large openings at the top, but none at the bottom, but No. 3, having a large opening at the bottom and one at the top—entire top of hive off winter and summer—makes me wonder how a colony of bees could prosper in such a place, for it rains, snows, sleets, and freezes in that locality. I have seen it as cold as fifteen degrees below zero there, and *often* as cold as ten degrees above.

I have sometimes seen bees winter well in hives with long cracks near the cluster, and come out booming strong colonies in the spring.

So I am forced to conclude that bees have a far greater capacity for adjusting themselves to their environments than we usually think.

Last August a fine swarm clustered on a limb of a cottonwood-tree, twenty feet from the ground; and the scouts, failing to find a place that suited them better, at least failing to convince the swarm of the fact, they

agreed to make that limb their permanent abode. "Let come what may, we will do the best we can," they said, and so they did. When I took them down, Sept. 15, they had three combs of brood, 6x10 inches wide, and other small pieces besides. The wind had blown upon them, and some rain had fallen while they were there, and robbers had passed that way; but they had conquered them all, and were hastily preparing to make a stand against the attacks of the approaching winter when I took them down. They seemed glad and thankful when I put them in a hive and gave them combs of brood and honey, besides what they had, fixing them up snugly for the cold wintry days drawing closer all the time.

Not a bee offered to sting me during all the manipulations in locating them in their new home; and I was equally kind to them, not killing more than a dozen, perhaps, in the whole transaction. They were well-marked three-banded Italians; and by the way they acted I am compelled to believe they are a colony of *very* intelligent little folks.

Lest my purpose in writing this article should be wrongly interpreted by some, I will add that I perfectly agree with the editor of GLEANINGS in his views as set forth in the statement quoted at the beginning of this paper.

Roswell, N. M.

TWO-POUND SECTIONS INSIDE STANDARD FRAMES

BY W. F. COX

I am enclosing a sketch of an experiment I made this year with standard Hoffman frames and special sections of such a size that four will just fit inside. I find that my bees like them much better than the regular sections. As is well known, bees much prefer working in the frames to that of sections, and will store a much greater amount of honey. I think it is largely due to the fact that they like to work in large units.

The advantages of this plan are partly due to the deeper section and partly to the wire-screen separators thru which they pass. The screens also permit them to cluster closely when cool days come.

One can use these frames of sections for feeding very nicely, and there is no real objection that I can see to using them for brood-frames in a pinch. The average person cares but little whether his section is one or two pound.

Danville, Va.

[The two-pound section is not new. In fact, the first sections that could properly be called sections were about two pounds in weight when filled. They were rather thicker in proportion than yours, however, and of course the details of construction were different. We do not know that we have ever seen exactly the same idea. The nearest to it is the small mating-hive frame, three of which fit into a Hoffman frame for the purpose of getting the combs drawn out and filled with brood. No effort was made, of course, in this idea to secure comb honey.

There is one feature that we should be a little afraid of, and that is the greater fragility of such combs. It seems to us that they would require such careful handling that shipping them any great distance, or possibly even a short distance, would be almost out of the question. We know that it is very difficult indeed to ship full-size combs of honey—so difficult that it is al-

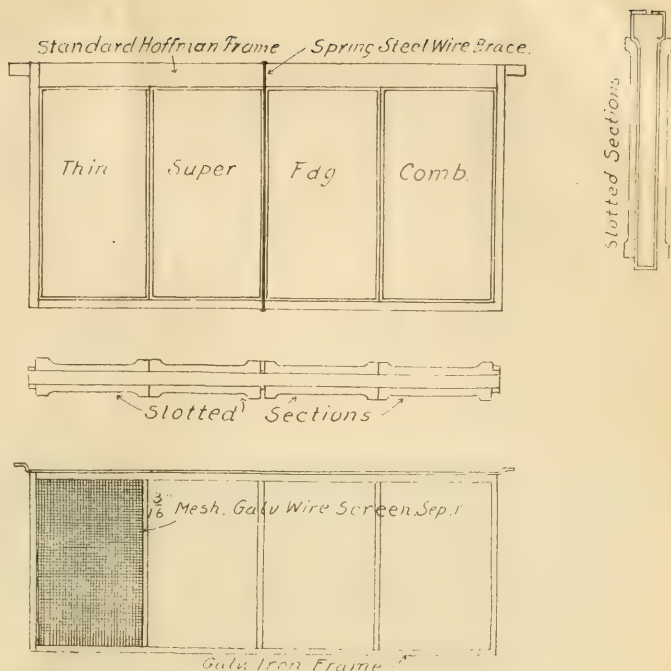
most never attempted. We have found that it is difficult to ship even shallow frames of honey. This two - pound section, less than four inches wide, and nearly twice as high as the ordinary section, and also thinner proportionately, would break rather easily, we are afraid.

Of course, not having had any actual experience with the idea in question we may be mistaken. We realize that it is not always a good plan to raise objections without having actual experience. However, we mentioned our fears to our correspondent, and his reply follows.—ED.]

The points raised are to be considered; but is it not a fact that the comb in shallow frames and standard frames break from the top-bar because of the great distance from the end supports? and isn't it true that the sides of these two-pound sections, being less than four inches apart, support the comb about as well as the sections of greater width

and less depth? I am a constructing engineer, and my line of work leads me to the theory of these points, which I have reasoned out as above. Therefore I believe you will find that an eight-inch section will ship all right.

Danville, Va., July 6.



WHAT'S THE NEED OF FOUNDATION, ANYWAY?

Short Cuts Sometimes Necessary

BY E. J. LADD

Verily necessity is the mother of invention. Time, the present; place, the mountain, miles and miles from nowhere; scene, a mountain apiary; scenery, a hillside up and up the mountain, and, as far as the eye can reach, acres and acres of fireweed, elkweed, or willowhart; in the foreground, 100 colonies, each 2, 3, 4, or 5 supers high; a rough cabin for the beekeeper (a beginner), who, nearly bereft of his senses thru lack of necessary supplies (a fair example of lack of preparedness), made the scribe welcome, and unburdened himself to a willing listener. Somewhat thus ran his story.

The bees had been carried to the present location over trails—no roads; blankets, tools, and a grub stake, and a few bee-supplies entirely inadequate were also packed in, and the season opened, and the flow was on.

Supers were filled rapidly, and others substituted, till, presto! all foundation for starters was exhausted; my host was in a quandary. Supers were filled with empty sections, placed on hives, and then trouble commenced, for the bees had the supering habit, and in a few days combs were started in all directions, mostly across from separator to separator. This was the situation, when on the scene arrived yours truly. After some cogitating we took stock, and found some wax, toothpicks, a cover to a lard-pail; then a small bed of coals made going easy. As soon as sufficient wax was melted, toothpicks were dropped in, and then one was placed straight in the center of the top of each section. They stuck well, and the process was rapid. Supers were filled and placed on hives.

On examination the next day we found

the bees had accepted the "starters," and that trouble was over. My stay was of sufficient duration to see some fancy finished sections, straight and smooth, sealed, and fastened to the edges. What more could any one ask? This stunt worked

successfully, and the mountain beekeeper was feeling better; but, listen! If any of you Easterners get some sections of mountain honey with a toothpick, kindly admit that it didn't hurt the sample. Blame it on to me.

Portland, Oregon.

TWENTY FOR A START

BY MORLEY PETTIT

The first summer course in beekeeping was held at the Ontario Agricultural College, June 12 to 16, 1916. There were about 20 in attendance, which was a good number considering the busy season and

Vice-president of the Ontario Beekeepers' Association; Morley Pettit, Provincial Apiarist, and Geo. F. Kingsmill, Assistant to the Provincial Apiarist.

The work was concluded to supplement



Members of the first summer course in beekeeping at the Ontario Agricultural College.

the fact that backward weather had put all farmers behind with their work.

The speakers included Mr. Frank C. Pellett, State Apiarist of Iowa; Mr. F. W. L. Sladen, of the Central Experimental Farm, Ottawa; Mr. James Armstrong,

the winter course, applying in the apiary the things learned in the classroom. Members of the class were expected to supply themselves with veils and smokers, and were given apiary practice.

Guelph, Can.

HONEY METHOD OF INTRODUCING A NEW WRINKLE

BY ROY D. TAIT

I have noticed Mr. Baldwin's reference to introducing queens daubed with honey. I have a way that has never failed me, nor has it failed any one I have induced to

try the method. It is simple, quick, and absolutely sure.

After dequeening I hold the caged queen in my left hand, pry out the little nails

that hold the screen on the cage, and at the same time hold down the screen with my left thumb. With a small spoon in my right hand I scrape out of one of the combs a spoonful of the bees' own warm honey. I let the queen crawl out of the cage and daub her as she comes out with the warm honey, bits of wax and all, and let her roll down between the frames, put on cover and the job is done.

I introduce the new queen immediately

after the old queen is removed. It makes no difference whether the new queen is a virgin or a laying queen, nor does it make any difference whether the colony has cells or not. She is always accepted.

The new queen is thoroly daubed with their own honey; and after they get her nicely cleaned off I suppose she has the same odor. Anyway she is always accepted.

I have just introduced twenty-six queens without a miss.

Hornbrook, Cal.

THE ADVICE OF JOB'S FRIENDS

BY R. F. HOLTERMANN

When we look at the medical profession, and the diversity of remedies they prescribe, it does not seem out of place to lose all faith in them. When we look at our apian doctors there appears to be a similar condition. Since my article appeared, asking for the advice of those who have cured European foul brood much has been said in GLEANINGS upon the subject, and the experience given differs widely. To this conclusion, however, I have come, that the diversity of opinions and experiences advanced only go to prove that this disease is a fit subject for investigation by Dr. Phillips, of Washington. I have no doubt that, with the financial help he has, and the natural ability he possesses as an investigator, he is in position to solve the problems involved, and leave the apicultural world the richer for his investigations. The work he has done in connection with the wintering of bees has proven this.

Let me make an apology for saying anything which would justify any flippant remarks about Job. We are so much given to imitation that the name Job is used in a way it should not be. Few of us (I am not) are worthy to be compared to this man, and his life teaches us that God in wisdom allowed certain things, many things, to come into his life to make him understand himself better and know God better. The climax is reached in that passage, "I have heard of thee by the hearing of the ear; but now mine eye seeth thee. Wherefore I abhor myself."

In the articles already referred to, and out of which I am to find such consolation and edification, we find a very great difference. We have on the one hand almost nothing done; then the removal of the queen, and, in the case of George H. Rea, page 273, the shaking of the combs. Mr. Rea says, "If the infection is general in the apiary, which is probable in an out-

break of European foul brood, all colonies are shaken in order to run no risk on those that 'do not show it,' etc. This view rather agrees with what I think ought to be done to deal with the disease in anything like a scientific way. My opinion still is that all diseased brood should be removed from the bees to prevent their contact with the germs in clearing the dead larvæ from the cells.

However, I have received some valuable and kindly advice from beekeepers not at all agreeing with Mr. Rea and myself; and there is such a great saving from shaking and melting combs that I shall likely follow that plan if the disease shows up in many colonies. If only a few show disease I shall continue to remove all diseased brood from the hives.

As to Italianizing, that had already been done, aiming at getting disease-resisting strains, as, for some years, owing to the prevalence of the disease, I have been expecting to have to battle with it sooner or later. I still consider the conflict in which I am engaged quite as serious as I expected. It is no child's play with seven apiaries of more than 700 colonies, and the disease found in almost every apiary.

Among the communications received is one from P. W. Stahlman, West Berne, N. Y. As Mr. Stahlman writes in a very catchy way, driving his points home, I shall be pardoned for using his own words. The letter, dated Feb. 8, 1916, is as follows:

I am not writing for any bee journal; but when I read your article I could not help feeling that I might assist you materially in your work with the disease; and what I am giving to you I give free-handed, as I have always considered your writings well worth reading, as they come direct from the shoulder, and from an experienced beekeeper. Mr. Crane tells you the shiftless beekeepers may well regard this disease as a serious matter if not an actual calamity. I say amen to that.

In the February issue of *Gleanings*, Timberline Riggs gives a cure, but says in substance he does not claim that it will hold good in all cases and in all localities, and I say that also is true. And so it goes. From time to time men of experience will tell you things which do not agree, and yet in one way or another all may be good sense.

But when you once get thru the mill, and the grist is ground [A painful operation, I think.—R. F. H.] you can rest assured that your own experience will be your best doctor [Thanks. I think it will be, in my own estimation, at least.—R. F. H.] I have been in this locality ever since Frank Boomhower was our first inspector; and to say that I have seen the disease in all its forms and ravages is putting it mildly.

THE TREATMENT ATTEMPTED.

We bought up all the old box-hive bees we could get, at a low figure, and drummed the bees out into modern hives, and in so doing we helped to a great extent to clean up the disease, for the brood in these same box hives was generally in a diseased condition, and, with the old black bees, a favorable pasturing-ground for European foul brood.

I have been thru this disease thru thick and thin, night and day. I was here when the disease was in its youth in New York, and I am here yet. I have seen and handled it from a light case to complete rottenness; and for my part I can say that I do not care to go over the ground again—at least not on as extensive a scale as I have done. In our treatment we shook and we drummed the bees. We fumigated with formalin, and we fumigated with brimstone. We bathed the combs in a strong solution of salt water. We put the bees on starters as well as on full sheets of foundation. We doubled up colonies, and we tiered them up as many as four bodies high to get strength. At that time our inspectors were new in the work of the treatment of European foul brood, and all or nearly all recommended shaking as the only means of eradication. We washed our hands and tools in carbolic-acid water. We made all new hives, etc., because we were told that anything that was infected must be cleaned up, and fire was the remedy, even to the burning of bees in some cases.

WHAT HELPED.

Not until we began to tier up to get strength did we begin to see that there might be some way out besides melting up all combs, getting rid of all the honey, making comb foundation or buying it, which was a great expense and muss.

We today know by experience and proven facts that even our authorities may be wrong in some things, and this method of cure was one of them. I am speaking from experience, not theory; and I will say the field has been well covered; and where the disease is not just making its appearance it would be wisdom to follow the advice of those who have fought the battle well before

present experiences were available, the benefit of which I will now offer you. This advice has been given you before, but perhaps I can say it in a different way so that it may soak in better; and the same is my very best advice that experience has taught me and many others in this vicinity ever since the disease struck us fairly in the face.

THE CURE.

1. Be prepared for the disease, and before you enter into the actual battle by having your colonies hit by the disease, by getting good young Italian queens in your apiary. In such a case you will not be hit so hard. Get these queens from a reliable man in a locality where the bees survived the disease. Know that he is honest in furnishing you with his best immune stock (a hard matter). You could get a breeding queen of such, and do the trick yourself—breed the queens, but better if you can do the former. When the disease appears, do not let it get bad before you attend to it, but either shake or change combs of brood to the upper story, and keep the queen below on clean combs, and have the colony strong in bees, and this will save you combs and honey; and once you get all Italianized you will not have much to contend with more than to see that young and prolific queens are in all colonies. Then the work is more than half done.

Of course you will occasionally find a mild case after either treatment, when action should be taken at once.

Here is a good thing in connection with the treatment: Do not have a lot of weak colonies around. Avoid all things that arouse the apiary; do not work with the bees out of curiosity, but attend strictly to the treatment in one way or another as given heretofore.

Every fall, if any colonies are affected, take them up, especially the weaker ones. This is a great advantage.

We have had no disease to speak of for three or four years; but once in a while a very light case appears, the origin of which we do not know; but it is there nevertheless. Such a case we treat at once, and with that it generally ends.

BEES MUST GATHER DURING TREATMENT.

Of course it is conceded that bees need to be getting honey when treating them for the disease, otherwise they must be fed.

The object of this is not to cure the disease but to help the colony prosper again. And let me say right here you cannot treat the colony and get as much honey as tho they could go on without being shaken. [Just what I felt sure of.—R. F. H.] But something must be done, and your very best weapons are:

1. Good young immune Italian queens.
2. Strong colonies.

3. Mean business when you attempt to stamp out the disease. [I suppose a man who expects his wife to get up and light the fire and get breakfast while he would be resting in bed would not do for the above.—R. F. H.]

Do not imagine you can clean up everything at one stroke, nor absolutely even in one year. It will crop out occasionally. I nearly always kill the queen of a colony that tolerates the disease, and replace her. I have bought small lots of bees near me to keep the disease from being harbored there. I do not believe that bees must rob the infected honey to get the disease, as it can surely be cured and still retain the combs. This is sufficient proof. Also shaking on starters or foundation does not always cure. [I know that from experience.—R. F. H.] Oh, no! Do not think that. I treat both ways. Again, by dequeening we shall have our combs yet. Any one can see them in the breeding season, full of as nice brood as ever was. I say again, therefore, do not burn good comb.

I will not say do not shake at all, but why should we when it is not necessary?

Mr. Reuben V. Cox, Sloanville, N. Y., also kindly wrote the following:

I am only a small beekeeper compared with you, or only about a quarter your size, having 200 colonies; nor have I stamped out the disease; but I own the yard into which European foul brood was first introduced into New York by nuclei brought from the South, probably in 1890. I bought the apiary in 1908. I have had perhaps 24 or 25 cases, and none in the past four years, so I am one from whom you wish to hear. There are other apiaries around here that have gone thru the same. For instance, I worked for E. W. Alexander, seven miles from here, when he had only a few cases. I am told he has had more in the past few years. I think the disease, like most others, varies in severity; and I think Dr. C. C. Miller's bees must have had a very mild form to be able to cure it in about a ten days' gap in brood-rearing.

E. W. Alexander, you will notice, recommends 25 full days to be sure that every cell of brood, worker and drone, is hatched. He told me he had lost, from first to last, over

1000 colonies; yet, shortly after 1900, he secured from 25 to 35 tons of honey from his own apiary of 600 colonies. On the other hand, one D. Kimbel, only about two and a half miles west of here, kept and still keeps about 100 colonies, part of which are in box hives. So you can see none of the usual treatment could be given in his case. Yet I know the disease has been on his ground. Here we have sometimes three honey-flows—a light one in June from clover; sometimes a good one in July from basswood, and usually a good one in August from buckwheat. I can cure severe cases by the Alexander treatment in any of these flows. Mild cases will sometimes cure themselves; but I find it hard to winter such cases; and generally the first of the buckwheat flow I kill the queen, and, to prevent robbing, a few days before that flow closes, sulphur the bees, extract the honey, melt the combs, and burn the frames and scorch out the hives. I find that the money from the honey and wax about pays for the new colony I buy in the spring. Some might object to selling honey from the diseased bees; but I consider it no worse than selling it after the Alexander treatment, as in either case the bees polish the cells. European foul brood seems to decrease in severity as the bees become used to it in any locality.

If the bees can clean out diseased brood, and put the cell in a condition not to transmit the disease to the next larvæ, they must secrete a disinfectant. If a cell is so cleaned before storing, either honey or the queen laying in it, then it must be a safe method to remove the laying queen until all cells have been cleaned by the bees. The success of the Alexander method would sustain the above. I am looking forward with interest and some anxiety to the developments which will take place among our own bees, and, if able, will give the result of my experience.

Brantford, Ont., Canada.

OVER ONE HUNDRED GATHER AT CHICAGO TO LEARN FOUL-BROOD AND SWARM CONTROL

BY KENNETH HAWKINS

Over 100 beekeepers of Indiana, Illinois, and Wisconsin gathered at 3000 North Cicero Avenue, Chicago, on Saturday, July 15, for the first annual field meet of the Chicago-Northwestern Beekeepers' Association, where they listened to prominent beekeepers of Illinois and Indiana. N. E. France, president of the association, was not able to be present.

A feature of the day was the picnic luncheon in charge of Secretary John C. Bull and President E. S. Miller. Following

dinner the events of the day occurred in the following order, with Mr. Miller's system of swarm control featuring: Inspector A. L. Kildow's methods of handling foul brood. A. Stanley, of Chicago, told how he reared queens, as did Kenneth Hawkins, of Plainfield, Ill., who also gave his plan of queen introduction by his new queen-cell method.

An excellent demonstration with live bees was given by Mrs. Coppin, who, without a veil, gave some beginners several thrills when she opened one of Mr. Bruner's

strongest colonies, found the queen, and passed the frames out thru the crowd.

Mr. Miller's method of swarm control, which was the feature of the afternoon talks, is as follows: When it is determined that a colony is about to begin swarming preparations, one frame of brood with the queen is removed from the hive and placed in an empty one. This latter is set on the old stand, and the rest of the room filled out with empty combs or full sheets of foundation. The frames of brood and honey, with the space of the one frame removed,

filled with a comb or foundation, is raised over the hive containing the queen above a super, which latter is also above an excluder. Altho this method requires a great deal of careful manipulation on the part of the beekeeper, Mr. Miller has followed it for some time, and handles all his colonies in this manner, and has controlled swarming in the past few years to a negligible minimum. It is also used at his outyards as well as in the home apiary. I believe Mr. Miller handles his bees without help.

Plainfield, Ill.

SWARM PREVENTION IN OUT-APIARIES RUN FOR COMB HONEY

The Importance of Requeening in the Fall

BY M. N. CUNNINGHAM

For the past five years I have kept from one hundred to one hundred and fifty colonies in outyards from four to nine miles from home. I have a very small percentage of swarms—perhaps not over 5 per cent.

I begin in the fall by replacing any old or failing queens. Old queens are one of the greatest causes of swarming while young queens are very little inclined to swarm. My plan is to visit each yard about once a week after the colonies start brood-rearing in the spring. As some begin to get strong in young bees I equalize by taking combs of hatching brood from the strong to the weak.

We usually have sufficient honey coming in by April 15 to cause swarming. About this time the bees show their crowded condition by hanging out at the entrance. I proceed to ventilate such colonies by raising the hive from the bottom-board, in the rear only—with a wedge-shaped entrance block or a small stone or stick—from one-fourth to one and one-half inches according to the weather and the strength of the colony. This makes it possible for the bees to live in the hive and proceed with their work instead of having to stop work and cluster outside to keep their combs from melting down. Is it any wonder bees swarm under such conditions? With means of ventilation they can go on with their labor, and the hive can be kept full of brood in comfort while the honey goes into the super. As the weaker colonies begin to cluster and get strong I raise them at the back also.

From now on I examine only by walking behind the hives and tipping them up from behind, blowing a few puffs of smoke between the bottoms of the frames and noting the conditions as to room, brood-cell cups,

and queen-cell. All of this can be easily done after a little experience.

If the hive is crowded with brood and the main flow has not yet started, I build up my weak colonies with sealed brood, probably only one frame from a hive, replacing with an empty frame or comb foundation, so both colonies are benefited. If a hive is very strong or shows cell cups containing eggs or larvæ, I take more brood and give more room and plenty of ventilation. In case of a colony containing cells sealed or nearly so, practically the only cure is to take all brood away and give empty space, but if one is a little careful this need not happen often.

As soon as our main mesquite flow starts I give one super, and when this is half filled I put another on top, not underneath, so the bees finish what they start before going above and are not discouraged by having the first super so far from the brood.

The first few days of the main flow is my rush time. The colonies that start work in the supers seldom cause trouble, but a few start cells and want to swarm, and those few get nearly all their brood taken away so that by the time the new combs are filled they have forgotten they want to swarm.

I make nearly all my increase later from nuclei and build them up on dark honey in the fall.

After the main flow is started I look the colonies over by lifting the hives from the rear as before about once a week or perhaps two weeks and add supers as needed. This is done merely to save a few swarms from colonies whose queens are failing and might swarm. To these I usually introduce a virgin or ripe cell. These examinations are quickly and easily done—so easily that I know the condition of a colony by the time

a man opening a hive would have the cover off.

There are two objections to this way of procedure, but they are so unimportant that I do not consider them. First, the bees

build burr comb below the frames, but it is necessary only to take a hive-tool and scrape it off to handle the frames. Bees also jump out of the back of the hive and sting the shins. A puff of smoke cures that. Carlsbad, N. M.

WHY SUGAR-FED HONEY IS NEVER FOUND ON THE MARKET

BY W. M. COX

Last spring Mrs. Allen asked how many pounds of syrup are required to make a certain number of pounds of sealed stores. Dr. Miller answered that $5/7$ of a pound of sugar is about equivalent to a pound of honey, or in substance that she would get a pound of syrup stored for each pound of thick syrup fed. Several years ago I asked Dr. Miller about the same question, and in his answer he thought the number of pounds I would get stored would about equal the number of pounds of sugar fed. I suppose he has forgotten more about bees and honey than I ever knew, but both his estimates are certainly too high.

In writing about having sugar syrup stored in the comb to sell for honey, E. W. Alexander said: "Aside from any consideration of fraud or the pure-food law, there is no money in it." Dr. Phillips says, "Of course this has been tried; but there is nothing in it, financially or otherwise."

If I can buy sugar for 5 cents a pound, and get it stored in the comb and sell it for 15 cents a pound, it looks to me, aside from any consideration of fraud or violation of the pure-food law, like a pretty good investment.

When I asked Dr. Miller that question I was trying to post myself so I would know how to talk to a lot of people who think nearly all the honey offered for sale is made from sugar.

I sold a man a pail of honey. He said it all went to sugar. He did not openly accuse me of fraud, but it was pretty evident he thought the honey was made from sugar. Neither he nor his relatives who had bought of me ever bought any more.

A lady came to my place to get 20 pounds of honey for herself and 10 pounds for a

friend. She said, "We don't want to buy it at the store, for that is this sugar-fed honey." I told her what the United States Department of Agriculture had to say about sugar-fed honey, and that the Department has a beeyard a few miles out from Washington, in charge of bee experts who are gathering information for the benefit of farmers and others who keep bees. I told her that from a little experience I had in feeding up weak colonies I thought we should have to feed on an average about three pounds of sugar for every one-pound section we could get the bees to fill, and the price of a pound of honey would not pay for the sugar. I may be a little off, but I guess I am about as near the mark as Dr. Miller.

I also told the lady that the honey in the store was pure bee honey, but my honey had been left on the hive for the bees to ripen, and it was probably a better grade of honey than she could get at the store. I told her a lot of other things. If there comes a time I cannot sell all the honey I can produce, I intend to write some things for the local paper.

Oakland, Ill.

[There is certainly a danger that uninformed persons finding that a beekeeper buys large quantities of sugar to feed his bees might jump to the conclusion that honey, especially honey that has granulated, is made from sugar syrup. Producers cannot be too careful in matters of this kind. There is need of constant education. The truth never hurts. Explain that honey produced from sugar is a possibility, but not a paying proposition, and consequently there is none on the market.—Ed.]

NOW WHO'S RIGHT?

BY M. T. PRITCHARD

In compliance with Dr. Miller's request, page 521, July 1, I submit the following report:

A frame of eggs nearly ready to hatch

was taken from one of our breeding-queen colonies, and a small patch of the eggs carefully removed from near the center of the frame. It was then returned to the colony.

and a close watch kept to ascertain when the queen found these empty cells and laid in them.

The queen laid in these cells between 8:30 and 9:30 A. M., Aug. 3. Two of the eggs were hatched at 7 A. M., Aug. 6; the rest within an hour.

These larvæ were grafted into queen-cells at 10 A. M., Aug. 7, and the last cell was sealed at 10 A. M., Aug. 11. I failed to find when the first cell was sealed; but cells grafted at the same time, but with smaller larvæ, were not sealed at this time. From this I concluded that they had been sealed only two or three hours. These larvæ, which were about 26 hours old, were larger than we use ordinarily.

The first virgin emerged from her cell at 6 A. M., Aug. 18, and the last one $4\frac{1}{2}$ hours later.

Medina, O.

[Sometimes a little dog unconcernedly bites a temporarily peaceful big dog. . . . To make a short story shorter, after some other big dog joins in the fight, the little dog wiggles out and sits by the side of the road watching the fun.

Without intending any disrespect to the other parties concerned, I claim the honor of being the little dog that started this scrap between Dr. Miller and Mr. Pritchard (the two big dogs), and I am now sitting by, watching the fun.

From my point of view it appears that Mr. Pritchard has a little the best of his opponent. I have admitted that my original statement, page 403, May 15, is probably extreme in that six to eight days between the hatching of the egg and the sealing of the cell is surely beyond the average length of time. But I still believe that Dr. Miller's estimate, "never more than five days," is also extreme in the other direction.

Take Mr. Pritchard's figures: In spite of the hot weather, the time between the hatching of the eggs and the sealing of the cells was about an even five days, or possibly a little more; and the total elapsed time from the laying of the eggs to the emerging of the queens was just about fifteen days. What would these figures have been under less favorable circumstances, cool weather, weaker colony, etc.? Sic 'em, Dr. Miller!—H. H. ROOT.]

THE SEASON IN SOUTH FLORIDA

BY A. E. AULT

The usual time for orange and grapefruit to bloom in south Florida is from Feb. 25 to April 1. Last season, probably owing to cold and dry weather, there was scarcely any surplus orange honey, tho the bloom continued a month later than usual. Saw palmetto, which blooms in April and May, gave good returns in a few favored locations, but as a rule the crop was short.

The conditions that seemed unfavorable for the secretion of nectar from orange and palmetto proved favorable for seagrape, black mangrove, and cabbage palmetto. Black mangrove began in June, and continued till about Aug. 1. The seagrape and black mangrove grow only along the coast. Toward the last of May seagrape began to yield, and continued thru June. The honey from this plant is of fine quality. A peculiar feature of it is that, as the light reflects from the honey, it shows a decidedly green color.

My best average this season was produced at a small apiary of 26 colonies located at Cortez, a fishing town near the point of a narrow peninsula. There is not much fruit bloom in reach of the bees, nor is it a first-class location for saw palmetto. But to offset this the bees have access to a vast

range of seagrape and black mangrove; and, altho they cross the water to outlying islands to secure the greater part of this honey they never fail to "deliver the goods;" and I have secured from this apiary as much as 200 lbs. average. My record of honey taken from this apiary for the season is as follows: May 31, saw palmetto, 400 lbs.; June 12, seagrape, 680 lbs.; June 28, black mangrove, 1060 lbs.; July 14, black mangrove, 1300 lbs.

At the out-apiaries I use a 10x14-foot tent with 4-ft. sides. I use no ridge-pole, but, instead, have a long overrope. At the end of each gable two knots are tied in the rope $1\frac{1}{2}$ inches apart. The tent is supported on two poles 8 ft. long, having a slot at one end which fits between the knots at the gable of the tent. In practice we use the tent-poles outside the tent, as they are more convenient to set up and take down. The tent-pins are left in the ground from one visit to another so that the tent can be set up in a very few minutes. With a large screened window on opposite sides, the room is light and airy. A small hole at the point of each gable serves as a bee-escape.

THE EQUIPMENT.

I use an automatic two-frame extractor.

Two discarded supers, well-braced, act as a stand for the extractor at the end of the tent where two posts are firmly set, to which the extractor is braced. A small barrel is used for the cappings. An old Novice extractor with the basket removed makes a good strainer can. A double thickness of cheese-cloth is put over the top, and over this a fine wire screen. From this the honey is drawn into the cans.

I always use a strong light wheelbarrow when collecting honey from the hives. This is wheeled in and out of the tent thru the loose flap at the end. Two light carrying-boxes each of the capacity of a ten-frame super are used on the wheelbarrow, kept covered with a heavy robber-cloth. Boxes used for the square 60-lb. honey-cans make a good carrying-box. I put two together, removing the inner side, and nail a good handhole at each end, with also a cleat across each end inside for the combs to rest on. Such a box is strong, light, and just the right size.

On July 14 with such an outfit as I have described, my 18-year-old boy and I drove seven miles to the Cortez apiary, and by 9 A. M. had the tent set up. By 2 P. M. we had extracted 1300 lbs. of the finest mangrove honey, and had it ready to load on the wagon. In the mean time we had our dinner, cut the weeds and grass about the apiary, made an increase of two colonies, and waited on several parties who came to buy honey.

Aug. 9 I visited this apiary again and found many of the supers full and others partly full of white mangrove honey. I estimated the amount then in the supers at about 800 lbs. If I take 500 lbs. of this as surplus it will make an average of a little over 150 lbs. per colony.

MY WAY OF MAKING INCREASE.

I have also increased from 26 to 37 colonies. This was done by a method which I

have practiced for years. It tends to prevent swarming, and has given good results. In reviewing the bees, when they first show a disposition to swarm, as I find a colony that is congested with bees and brood, and is, perhaps, starting cells, I select one, two, or more frames of sealed and emerging brood with adhering bees, and place them in an empty hive. I generally throw a handful of grass or leaves against the entrance. When another in similar condition is found I again remove one, two, or more frames of brood as before, and add them to the others placed in the empty hive. This practice is continued until the brood-chamber is full. Besides the bees that adhere to the combs I occasionally shake the bees from one or more frames into the colony I am building up. Bees so united do not fight. Care should be taken that these built-up colonies have a good supply of honey. When the brood-chamber is full of brood and bees a super is often added and filled with frames of brood and honey.

"Pulled queens," that is, queens just emerging from the cell, are readily accepted by these built-up colonies. Lacking such queens, a cell may be given, and they are very rarely torn down. Such built-up colonies can even be found without a cell, as when the work is well done they will build good cells of their own. Of course all such colonies should be inspected in due time to make sure that they have queens.

When formed early in the season I often secure some of my best yields of surplus honey from these "built-up" colonies. By this method we keep all colonies strong, and have no weak nuclei to nurse.

The bees along the coast have given the best results this season; but while they were busy storing seagrape and mangrove honey the inland apiaries were showing a steady gain from cabbage palmetto.

Bradentown, Fla., Aug. 13.

SOME OF THE HONEY-PLANTS OF PARAGUAY

BY J. BROWN

Tucked away in the heart of South America is the little-known republic of Paraguay; in the heart of Paraguay is Villarica, a town of some 15,000 inhabitants, a little less than three miles to the east of which lies my present home. As I look toward the rising sun from my open-air bed-chamber my eye passes over my apiary of some fifty colonies, and pauses a moment on the gentle slope behind, thick with waving palm and orange-trees. Beyond this declivity stretches for two leagues a level

grassy plain, which I am unable to see from my position. Then comes my horizon, a 2000-foot wall of forest-clad rock, running north and south, called the Sierra de Ibituru. Place yourself in imagination on the summit of this, and try to picture the leagues upon leagues of crowded primeval forest that stretches northward and eastward, inhabited by strange and unknown animals, and tribes of human beings but little above them. But two days' journey on horseback, from where I write these lines,

and the traveler is in the Stone Age. Since the coming of the Spaniards, a tribe has lived there against whom has been and still is the hand of every man. Some say they are a tall race, others a dwarfish one, and the men are bearded. Their arms consist of a stone roughly shaped into the form of an ax-head. This stone is inserted in a split sapling of the right size. So rapid is the growth of wood that in a short time the head is firmly imbedded, so that when cut down the ax is provided with a handle that will not come off.

Now, these people are very fond of honey, and are, consequently, great bee-hunters. Without a stitch of clothing, and armed with their stone hatchet, they climb the bee-tree and hew their way into the coveted stores. Sometimes the native Paraguayan hears the tapping, comes up with his gun, and shoots the poor Indian dead, giving as a reason that the skins of this particular tribe are very good for making bags for carrying Paraguayan tea (yerba maté).

The native bees of Paraguay are many, and of the stingless variety. Some of them make up for want of a sting by furious biting and frantic buzzing on every part of the body on which they settle, snipping off every hair on the hands and face by the roots as if they considered themselves animated depilatories. They gather only a small quantity of honey; but this is much esteemed by the natives as a remedy.

About a quarter of a century ago Italian bees were first brought to the country. At various other times Carniolans and Caucasians have been introduced, and the bee commonly met with is a hybrid of the three varieties. Some are very gentle; but those that show any trace of yellow are very much the reverse. Besides my own, there is only one other apiary in the country run on modern scientific lines.

Our principal source of nectar is the forest-trees, chief of which are the many varieties of laurel. The lapacho (*Tecoma curialis* and *T. varia* of the family of the *Bignoniaceae*) yields a very strong aromatic honey, which, from description, seems to be something akin to that of basswood. The palo blanco (*Exostemma* of the family of the *Rubiaceae*) yields a large amount of beautiful white honey. I had a large surplus last year from sangre de drago (*Croton succirubrus*), a widely distributed tree-shrub which produces a red resin yielding the dye known as dragon's blood. This honey was almost as dark as molasses, and very bitter when first extracted. After standing in the tanks for about ten days the bitterness went away and it became very

sweet. I had no difficulty in disposing of it. Orange and banana are also good yielders.

Our honey-flow begins about August, and lasts till the end of October. About January the banana begins to yield, and there is a fall flow from various flowers till the end of April. Only extracted honey is produced here, and the honey is put up in second-hand kerosene-tins, as a rule. I tried barrels one year, but they were not a success. Kerosene-tins are cheap, and, when well washed with soda, and exposed for a week or so to the tropical sun, there is no danger of contamination. I use factory-made Hoffman frames, but the hives I made myself, some out of rosewood (*Machaerium Sp.*), and others out of "female" mahogany (*Cedrela braziliensis*). The latter is far and away the best material, being light and durable. Rosewood hives sound very luxurious; but their weight in handling soon humbles one's pride.

DRONE-CELLS ON ONE SIDE OF COMB.

Some time ago Dr. Miller mentioned having received a specimen of such, and wanted to know if any one else had seen this. On going thru my extracting-combs I found no fewer than five with a patch of drone-cells on one side, all the other cells being worker. Four were small patches of about one to two square inches; but one was about four. As these combs had been stored away I am unable to say whether they all came from the same hive or not.

WHICH MILE IS WHICH?

In GLEANINGS for April 1, 1915, J. A. Heberle discusses this question with reference to observations made in Germany. About two miles seems to be the limit there, and Mr. Heberle quotes Mr. Goeken as saying that if American bees can fly six to eight miles it would be well to introduce such into Germany. There is evidently some confusion here. When an American writer speaks of a "mile" he means the English mile. German writers naturally mean a German mile. Now, the German geographical mile is more than four and a half times longer than the English mile, and therefore the bees fly the same distance.

Villarica, Paraguay.

Sure, It's Love at First Sight.

The honey method of introducing queens, page 525, July 1, is a good and sure way. I have introduced several with the best of success. The bees lick them dry, and then fall in love at first sight. And it is permanent too.

J. P. Lockwood.

Owen Sound, Ont., Can.

Heads of Grain From Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

"Where, where did the bee sting you?" said little Arabella's mother, who was trying to stop her daughter's tears. "Why, the bee stung me, right, right down by the Presbyterian church!"

The Beekeeper's Faith.

BY GRACE ALLEN

Dismayed by the visionless faces
Of town, he came back to his bees.
"Could they know but your rapture of humming
And quiet of shadowy trees!
But a dawn shall yet break when all people
Shall answer an ultimate need
By divineness of dream that forever
Begets a serenity of deed.
Then men shall be all noble-minded,
Their petty, mean gods put away;
Then women, full-grown and large-natured,
Shall justify faiths of today;
Then cities shall fall out of fashion,
While cut in the cool of the trees
With their books and their thoughts living gently,
More men shall be keepers of bees."

Don't Let the Bees Clean up Cappings; Press the Honey Out.

As to the advice to let the bees clean up the cappings, I should like to repeat Punch's advice to those about to marry—"Don't."

Any cleaning-up by bees is always dangerous.

Everybody thinks his own plan the best. This is mine. I have an uncapping-can wide enough to hold the Langstroth frame, and six feet long. At one time I ran the cappings thru the solar extractor, but I burned the honey. Now I put the cappings in the wax-press and press out all the honey, and it is as good as any. I have a German wax-press, and use a jack for pressure with an iron rod one inch thick and three feet long as a lever. As I could not make a box strong enough to stand this pressure I got my blacksmith to make a band out of an old wagon-tire and fit it around the box about one inch from the bottom of the box. This makes the box so strong I can have a couple of half-inch holes above the band to let the honey run out freely. I leave the cappings as long as possible in the press. The cakes when taken out of the press are laid aside until we have time to melt them. There is no honey in them worth bothering about, as I have found by putting some of them thru the solar.

To turn these cakes into wax I fill up an ordinary wash-boiler with as many cakes well broken up as the boiler will hold, then cover with water and bring to a boil to make sure the wax is all melted. I leave it in the boiler until cool, and all the wax will be on top. The last cake I had weighed 27 lbs. All my wax finally goes thru one of the D. A. Jones steam wax-extractors.

Islington, Ont., Ca.

J. S. Evans.

How Long Does it Take to Become an Expert Beekeeper? A Bunch of Questions.

Five or six years ago a beekeeper told me it would take ten years to learn the business. At that time I thought he was crazy. I have studied books on bees for the last year; have read the A B C of Bee Culture some three or four times, and many other books. Last spring I bought four hives of bees, and now I feel very much "at sea." I now have 13 colonies, counting the nuclei.

1. I found a comb a few days ago with dead brood. Some are of a slimy mass, and some have the shape of the nymph. It does not rope, and is white. Do the larvae ever die from natural causes? or is it European foul brood?

2. In making nuclei about May 10, how would it do to put two frames of bees and brood with queen-cell on each side of a screen division-board in a ten-frame Buckeye hive, and have one entrance at the southwest corner and the other at the northeast corner? At the time of division give each side one frame of sealed brood and one frame of honey on the outside; then in ten or twelve days give each another frame of sealed brood. If anything happened to the queen on either side, remove the division-

board and make it one hive. If both queens mated and went to laying, shove the hive 15 inches to the south and give entrance at the northwest corner. Put another hive at the north side and lift out the frames in the north side of the old hive, placing the same in the new, and giving an entrance at the southeast corner. If this plan is good, would not a screen be better than a wood division-board on account of the heat passing thru better?

Would it not be better, when one wishes to give a queen in a nucleus more room, to give a frame of hatching brood instead of empty comb?

3. Has any one ever practiced changing queens in strong colonies to prevent them from becoming exhausted—say switch the queens back and forth between a strong colony and a nucleus?

4. Could one take a strong colony of two stories and constantly rob it of sealed brood and give empty combs in the center of the lower story to take the place of the frames of brood? Would there be any advantage in this? Would it induce the queen to lay more?

Moline, Ill.

Louis O. Stone.

[The average person ought to get a fair knowledge of beekeeping inside of two or three years. This does not mean that he will know all that can be known, or that he will be competent to run a thousand colonies; but two or three years' experience ought to qualify him to operate a single yard or a few colonies in the back yard. Some people would need a hundred years to learn the business, and then they would get it only imperfectly. Ten years ought to qualify any person to get the business thoroughly, so that if he has it in him he can operate a series of outyards comprising a total number of colonies of 500 or 1000.

1. This may be a case of European foul brood or sac brood. If it does not spread, or if it disappears of itself, it is probably nothing worse than sac brood. Yes, larvæ often die of natural causes. Sometimes they are chilled or overheated. Sometimes they are starved because of a lack of sufficient nurse bees.

2. The general plan here outlined would work, altho we would recommend a solid division-board of thin wood. However, the wire screen will answer very well.

The possibilities are that, if the queen on one side of the hive dies, the bees of this one side will desert and go over to the other side. We find this to be true in the case of baby nuclei that are on the same principle. For this reason alone we would advise the use of solid division-boards.

One can give a frame of hatching brood providing the weather is not too cool. This will be preferable to giving an empty comb; in fact, there is no better way of strengthening a nucleus than to give it a comb of hatching brood.

3. We are not sure that any one has tried

this plan; but we see no reason why it would not work. The one drawback is that some queens would be lost in introducing from one colony to another. A better way would be to leave the queens in their hives and have other young queens take their place when they wear out. A queen that lays continuously during the entire season will not do good work if she is shipped south and then put at the job of egg-laying again. Seemingly she has to have a rest of at least six months before she will do good work the next season.

4. The plan could be carried into effect, but we hardly see what advantage would be gained. Sometimes it would stimulate the queen to laying more eggs; but a two-story colony would give a queen, if she is worth anything, all she could do.—Ed.]

Whose Bees Are They?

Has a man a right to hive bees on another man's premises without the owner's consent even tho he claim them as swarms from his own apiary? Can he defy the owner with impunity?

Quakertown, Pa.

A. H. Shank.

[When a swarm of bees leaves the premises of a beekeeper, that swarm is his property so long as he can keep his eyes on them and follow them to a point where they cluster again; but under the common law he can not invade another man's premises to recover the bees unless he obtains his consent.

In your case if the other party claims the bees as his, it is up to you to prove that you did not lose sight of them at any time, from the time they left your hive until they arrived at his premises. If you can not prove this to the satisfaction of the court, and if the other party refuses to let you come upon his premises, you can not very well recover your property which is morally yours. No, you can not enter upon the other man's premises without rendering yourself liable for trespass.—Ed.]

How to Mark the Net Weight.

I think I have noticed boxes of honey stamped something like this: "This box contains approximately 1 lb. of honey. Will you inform me whether there is now any legal requirement making it necessary to stamp boxes in any way?"

Lyons, N. Y.

W. S. Gavitt.

[The wording, "This box contains approximately 1 lb. of honey," is not in accordance with the national pure-food law, nor any state law with which we are acquainted. If the federal inspectors were to get hold of a package of this sort they would probably seize it and hold the packer responsible. The net-weight law requires that the exact net weight exclusive of the package shall be marked somewhere upon the label or container. This weight under a pound should be stated in ounces; if more than a pound, in pounds and ounces.

In the case of sections the wording should be, "Not less than — ounces." The ordinary section honey-boxes now in use will run all the way from 10 to 14 ounces minimum net weight. The average of them will run about 12½ ounces. The usual rule is to sort the sections into various weights, each weight in excess of some minimum net weight. It is not practicable to mark upon every box the exact net weight, and therefore the sections are graded according to weight. All in excess of a certain minimum are put in one class; those in excess of another in another class and so on. After they are put in classes by themselves they are marked with the appropriate rubber stamp.

Whether there is a net-weight law in operation within the state, it is always advisable to mark all packages of food with their net weight or minimum net weight as the case may be.—Ed.]

Annual Field Day of the Worcester County Beekeepers' Association and Eastern Massachusetts Society of Beekeepers.

This year, at the invitation of the Worcester County Beekeepers' Association, the Eastern Massachusetts Society met with the Worcester County Association at the home of Mr. W. E. Parker, West Boylston, on Saturday, Aug. 5. From 11 to 5 the air hummed with the sound of bees—not the insects themselves entirely, but with discussion and genial talk about them. The day was rather overcast, but pleasant, and there was a good gathering. All enjoyed the kindly hospitality of the host. Dinner was on the basket-lunch plan, after which came the speaking.

The special guest of honor, Mr. C. P. Dadant, of Hamilton, Illinois, editor of the American Bee Journal, spoke delightfully and instructively on prevention of swarming. He was followed by Arthur C. Miller, Providence, R. I., on "What to Do Now." Mr. Allen Latham, Norwich, Ct., and Dr. Burton N. Gates, Amherst, Mass., followed. Dr. Gates spoke particularly of the symptoms of bee paralysis which has appeared lately in different parts of the country. Later he demonstrated the proper method of opening and inspecting a hive, with valuable practical advice. Mr. W. E. Winter, of Ross Bros. Co., Worcester, had a good display of Falconer's supplies, while Mr. Jepson had sent some of Root's supplies from Boston.

Josephine Morse, Sec.

South Lancaster, Mass.

Easy Enough to Clean Out the Grooves.

Dr. C. C. Miller says, page 521, July 1, that the wedge and saw-kerfs in brood-frames are fine the first time when used, but the second time they are no good. Last spring I had about 50 old frames that I had cut the combs out of on account of foul brood. I just boiled them in lye and water; and as fast as I took them out of the water

I took out the wedge and took a little stick and cleaned out the saw-kerfs. When I was ready to put in foundation they worked as nicely as when new.

E. G. Baldwin, page 524, July 1, says that he would like to have others report who have tried the honey method of introducing. I have tried it on five queens, and have not lost any. It works finely. One colony I tried it on had been queenless so long that they had nothing but a little drone brood that was ready to hatch.

Lake Cicott, Ind.

T. C. Johnson.

They Didn't Need Any Queen.

I have a swarm that filled every frame with brood, and produced a rousing colony and filled one super of honey. When I took the honey off I examined the brood-chamber. They had no brood. They had been queenless for a month. They started no queen-cells and have no laying workers, and have filled combs with honey and bee-bread. There is no place for a queen to lay. Now, will they accept a queen? I gave them a frame of young brood and punched a hole in it to provide a place to start cells, but they refused to do so.

Rardin, Ill., July 19.

W. F. Shafer.

[It is a little unusual for a colony to produce so much honey when the bees have no queen. They gather pollen and some honey, but it is not common that they produce as much as a super of surplus honey, as you say.

We would suggest that you have a comb of young unsealed brood and see whether the bees will start queen-cells. If they will, then it will be all right to destroy the cells started and introduce a queen in the regular way. The fact that the bees refused to start cells from the comb of brood you gave them rather indicates that they would not accept the queen, altho we cannot be sure.—Ed.]

Honey at the Missouri State Fair.

We had the best exhibits last year of any previous year. We shall have more space this year for a finer and larger exhibit than ever. I have induced the fair board to increase their premiums, and shall try to get them to increase more in the future. I make an exhibit of both comb and extracted honey, also bees.

R. G. Robertson,

Marshall, Mo., July 22.

[See complete premium list on page 824.—Ed.]

Why Those Workers were Dwarfed.

I have just noticed the reference, p. 616, July 15, to a freak worker bee. This is no freak to me, for it is very usual where there is European foul brood. The dwarfed workers are due to climatic conditions and lack of stores for the nurse bees to feed them properly during the first few days of their larval state. This lack of attention of the nurse bees causes the larva to be starved.

Chico, Cal.

S. J. Morrison.

A. I. Root

OUR HOMES

Editor

My son, let thy heart keep my commandments; for length of days, and long life, and peace, shall they add to thee.—Prov. 3:1, 2.

Know ye not that your body is the temple of the Holy Ghost which is in you?—I. Cor. 6:19.

He paweth in the valley, he rejoiceth in his strength.—Job 39:19, 21.

Some time ago I told you about the enjoyment I was getting from my little second-hand electric automobile. It was called the Stanhope when it was brought out years ago; but when it was discovered that gasoline, especially when the price was away down, was so much cheaper than the electric current, the electric gradually fell into disuse except by the very wealthy. Another thing, our friend Ford put a cheap machine on the market that not only rivals the electric, but rivals a horse and buggy. Over a million of them are now blessing the people of the world. Well, when I bought this little electric the batteries were about used up and needed renewing; and it cost nearly a hundred dollars to have the whole outfit made good. As soon as I got it my old craze for electricity revived, and I commenced studying storage batteries, reading everything I could find on the subject, consulting the manufacturers of electric vehicles, and even going so far as to employ an expert to pull the whole thing to pieces and explain everything to me. Altho it took him two or three days, I stood by him almost every minute. I questioned a good deal about how many miles one could get on a fair road with one charge of the battery. By the way, after one has used up the charge it takes ten or twelve hours to get a full charge again. Well, the makers of the machine informed me that if I got 25 miles out of that rig on fair roads I could consider myself lucky. They said the majority of them on the streets of Cleveland usually went below that. You see I was anxious to know how long a trip I could make to surrounding towns or visiting beekeepers and other friends.

There are many curious things about storage batteries, and, like the poultry business, beekeeping, and almost everything else, the one who *succeeds* is the one who gives the work the most intense and intelligent thought and study. For instance, if you wish to preserve the life of your batteries, you should run them clear down; then when you store them you should store them clear up full. When you have got them stored clear up full on full voltage current, you want to cut the current down a half or less and make it run up again.

Furthermore, when your batteries get exhausted like a tired horse in climbing a long steep hill, you must let them rest. When a charge is needed again, and you are a mile or more from home, you can "get there" by giving the battery frequent rests. On one occasion I found myself half a mile from home, and the machine would not go another inch, even when I was out by its side and led it as one would lead a horse. As I was in a great hurry I left the machine by the side of the road and went home on foot. Going back a couple of hours later, it went home full speed like a young colt. It simply needed *resting*. Well, shortly after the cells had been renewed I got 26 and then 27 miles; then as I learned the different tricks about it I got 30 miles, then 35; and I cannot tell you how intensely I enjoyed the fun of seeing my machine day by day break its record. Where hills are very steep I get out and push the machine to the top of the hill, or carry along a newspaper, and read, when the battery gets tired. I soon found out that muddy roads or a big hill is a bugbear, and I planned to go around them and look out about getting on clay roads during a storm.

In order to get the best results—that is, the most miles, I find it important to make the vehicle as light as possible by removing every article not absolutely required. Leaving off the heavy laprobe that is required only in cold weather made quite a difference. I also omitted my overcoat, and this helped, and walking uphill as I told you. I think that in a former issue I told you about making a trip to Elyria, and afterward getting miles enough to make *fully 40 miles*; and I can hardly tell you the enjoyment and enthusiasm that I experienced in making the last few miles, getting it clear up to 40.

As the batteries grow older their strength is reduced. It was two years ago that I succeeded in getting 40 miles. Just now about 25 miles is the best I can do. Since I have had a Ford car for long distances, the little electric has been used for only short distances about town, or say four or five miles out of town. Our youngest daughter, Mrs. Boyden, has been appointed "deaconess" in our church, and she is expected to do a great deal of visiting. Well, this little electric hits the business to a dot. You can start it easier than you can start a horse. You can stop anywhere—no cranking, nor anything like it. In fact, if you want to move ahead only ten feet you can

just touch the lever and go the ten feet. It just now occurs to me that I omitted one other trick, and it is something that will apply to gasoline machines as well. When you have learned by practice how far the machine will go by its own momentum after you have cut off the current or gasoline you will make quite a saving by making it stop of itself at about the right point, without using the brake. The same thing applies to turning corners. When you come to a place where you are about to turn, cut off the current or the gasoline, and the machine will turn the corner by its own momentum. The differential machinery that is needed in all classes of vehicles to enable us to turn corners is an expensive apparatus. When it gets out of repair it is hard to get at, and an expensive job to make good. But if you stop the current or the gasoline so the power that is pushing is cut off when you turn corners this complicated machinery is relieved—there is no wear and tear on it. If you consult the daily papers you will find again and again where machines "turn turtle" and kill one or more of the occupants, besides maiming for life several others, all just because the driver turned a corner at too high a speed. Had he cut off the driving power before he reached the corner this could not have happened.

Perhaps you begin to wonder by this time what our text has to do with running automobiles. Well, I am just getting ready, friends, to talk about something besides automobiles. I have already mentioned, page 558, July 1, what the insurance doctor told me about so living that I shall be not only alive, but in good repair, as long as possible. The experience I had a few weeks ago suggested to me that I was, in a good many respects, very much like that little second-hand electric Stanhope with its storage battery and ingenious machinery to store up power with which to run. I succeeded in making the storage battery accomplish almost twice what it would do without that careful management and study. The machine and the batteries made not only 30 miles but clear up to 40 miles. My body and brain have passed the three-score-and-ten landmark, and the question begins to arise, "How much *more* is it going to make?" You know I have written several times about my forgetfulness—forgetting to take my mail to the postoffice down in my Florida home, etc. Well, I told the good doctor about my forgetting. He laughed as he said something like this:

"Mr. Root, you should consider that your memory is a part of the machine, and it is *wearing out*. You must rest it. You must

not drive it too hard, and you must not expect too much of it. From what you say, I think it is a wonder that you *do* remember things in your past busy life as well as you do."

Just a word right here in regard to helping the memory. Like everybody else (or at least I suppose so) I have places for my separate tools—hammer, wrench, screwdriver, coldchisels, etc. Now, I have lately decided that I had better not leave my things in *different* places. For instance, just this morning I wanted my little cultivator wrench. I had used it only an hour before, but it was not in its accustomed place, and I spent quite a little time looking for it. Finally I sat down and said, "Why, what *could* I have done with that wrench that I used just a little time ago?"

After a little brown study I said:

"Oh, yes! I decided that the best place for it would be to hang it on a nail where it would be in plain sight where I was cultivating."

Then I looked up at the nail, and there it was, sure enough. I had decided hanging it on a nail would be a better place than the one where I had been accustomed to keep it; but the fact of making that decision and of hanging up the wrench had entirely gone from me, and so I concluded that for the rest of my life I had better be careful about putting things in a *new* place. I told you I had discovered the tired-out batteries would work again with considerable vim if they were "rested" for an hour or two. Well, it is just so with this old body of mine. After I feel that I cannot go any further here in the office, read the letters, or go out into the garden to run the cultivator, a little sleep will fix me all right again. The younger friends all around me take their sleep just once in 24 hours. I do not know at what time they go to bed; but a good many times I *do* find them asleep after the factory whistle has blown in the morning. (I don't know what time they went to bed). Babies, you know, take short naps, and I begin to think that old people could as well do the same thing probably. I like to be about early, say shortly after daybreak. I delight in seeing the sun rise. Before it is up very far I want my breakfast. This good doctor said my heart would not hold out for long sieges just as it did when I was younger; and he said the heart, in order to do this work, needs a good supply of oxygen. A dusty atmosphere or a confined atmosphere, he said, is a clog on the heart. He asked me if I ever panted for breath. I told him I often did when cranking my automobile. He said the exercise was all right, and just

what I needed if it were not too severe, and that better air, and the pure air of the country, is very much better for one who is anxious to retain his powers of mind and body as long as possible.*

In regard to food, nature will indicate what is best for you if you will enter into her way. By the way, the Cleveland *Plain Dealer* is now printing some talks on health every day from a very competent and able physician. I greatly value these health talks, and I rejoice to hear this good doctor say again and again that stimulants and intoxicants are all to be avoided. He answers more or less in every issue of the daily, and every little while some one asks him if a little beer or whisky would not be a help for this, that, and the other. But his reply is *no* every time. May God be praised that the physicians of the present day are getting to be a unit in regard to alcohol as a medicine.

By the way, our good friend R. F. Holtermann, of Brantford, Canada, made us a call yesterday, July 5. We were talking about preserving health clear up into old age. He said something like this: "Some good authority has said that a man should exercise enough to take a good sweat twice a day;" and then he added, "As a matter of course we do not want to overdo the thing." He said his test was if, when he got up the next morning, he felt bright and well as a result of the exercise of the day before, that exercise did not do him any harm. That has been my experience. Many times lately when I feared the use of the cultivator might show itself, next day, to my surprise, I would get up feeling unusually well, and all ready for some more of the same kind of medicine.

Now, friends, in summing up is it not very likely that we can have greater "length of days, long life, and peace," as we have it in our text, if we study these bodies of ours exactly as I studied that electric automobile which I made do double the work they told me at the factory where it was made I would be likely to get out of it? But it came about because it was my delight to study it and master its mechanism from beginning to end. I went over books on electricity, and questioned experts, and studied God's laws in regard to the wonderful current which does our bidding in so many ways.

Our text also intimates that "length of days and long life" are the result of keep-

ing God's commandments. A study of the Bible will, I am sure, be a great help to long life. Then we can make it a lifelong earnest study to understand better the mechanism of these bodies. We can find out by careful intelligent experiment what helps and what hurts. When I discovered that headache powders gave instant relief, not only to headache but to toothache and earache, I was delighted; but when I found out shortly after that those same powders interrupted the digestion and "made mischief" with the machinery in other ways, I decided "no more dope for this child." It must have been toward thirty years ago that toward night I felt a queer breaking-down which I could not understand. I remember one evening just before our teachers' meeting I said to myself, "What in the world is the matter?" and I managed to get along in a dazed sort of way until bedtime. In the morning I was all right, and pretty soon I discovered that a *little sleep*, say twenty or thirty minutes, was a cure for this giving-out, if I may so express myself, when I have been doing an unusual lot of brain-work. My brain or nerves were in just the fix that the storage battery was. A halt was necessary in order for the various chemicals to assemble, as it were. Now, I do not know just exactly *how* sleep enables nature to readjust and make good certain things in order to make up for those that are worn out. After careful cutting and trying I discovered that physical exercise and taking a sweat are almost as necessary as sleep; and by carefully noting the effect of different kinds of food I was able to decide what foods are best for me, or the quantity of food that would enable me to do the most work. Upton Sinclair, as you remember, discovered he could get great benefit by fasting; and thousands besides myself have found out that over-eating is one of the great sources of mischief. Do not have too many different kinds of food at a meal; and beware of tempting dishes that are invented, it sometimes seems to me, for almost the sole purpose of persuading us to eat more than we need. Let us remember that these wonderful bodies of ours that hold out sometimes close to a hundred years are or should be "the temple of the Holy Ghost;" and let us remember the promise that if we study and keep God's commandments we are likely to have "length of days and long life." And, finally, if you will excuse the abruptness of my third and last text, even old men like myself, if we live right, may feel like that beautiful God-given domestic animal which "paweth in the valley and rejoiceth in his strength."

I spoke about the importance of storing

* I have just discovered that riding in an automobile, say early in the morning, against a good stiff breeze, tones and braces me up a thousand times better than any dope or stimulant ever invented. Just take in long breaths, as much as you can hold, and get an extra supply of God-given oxygen.

the storage battery clear up full and then letting it run clear down. It is better for the battery, and it will give longer service, than if a little more current should be added, especially when it is only part way run down. Now, I think this will also apply to these bodies of ours. At least for myself it is better to do a thoro day's work—of course not overdoing, but to avoid sitting around in a lazy way. After doing a fair day's work with both mind and body, I am then ready for a good sleep, and then ready for another day's work. If my regular hours of sleep are broken on it impairs the machine. This comes right in line with the injunction to "wear out, instead of rust out." If possible, find some kind of work that you enjoy—better still, some that you *thoroly* enjoy. But I would recommend keeping busy, even if you do not always enjoy it. I would especially urge all old people to study how to help themselves, and take care of themselves as much as possible, and avoid in every possible way being a burden on the younger ones. I am *thoroly* convinced that "length of days, and long life and peace," depend very much on what I have been saying.

THE AMERICAN CIVIC REFORM UNION.

The superintendent of the above institution writes me as follows:

My dear Mr. Root:—What do you think of my brand-new lecture circular? I know you can say "amen" to "Why I am a Reformer."
Cleveland, O., Aug. 8. A. S. GREGG.

The first page of the circular referred to reads as follows:

WHY I AM A REFORMER.

Because innocent and helpless little children cry for food and clothing while brewers, saloon-keepers, and corrupt politicians wax rich on money stolen from the breadwinners.

Because of the broken-hearted wives, mothers, sisters, and sweethearts whose loved ones have been robbed of strength, health, and all that makes a man noble.

Because Mr. Indifferent Voter is so busy making a living or striving to get rich that he doesn't care a hang who is elected to office unless the election happens to hit his pocketbook.

Because evil men in high places corrupt the people, and control government for private gain.

Because ignorant goodness and a "pork-barrel" state of mind breed a "pork-barrel congress."

Because fiends in human form "sit in the lurking-places of the villages," and often in the palaces of the city, and plot destruction of innocent young girls.

Because our jails, asylums, and poorhouses are overflowing with the uncanny victims of vice, drink, and degeneracy.

Because many men are so rotten with the results of vice and drink that they could not defend the country in case of attack by a foreign foe.

Because I want to help destroy the works of the Devil and establish justice, purity, and sobriety on earth.

My program.—A relentless attack on evil conditions by means of lectures, sermons, books, newspaper articles, legislation, and investigations; and the development of a righteous public opinion that will elect honest and capable men to public office and keep them there.—*Rev. Albert Sidney Gregg*, Lecturer and Promoter of Civic Reforms, Superintendent of the American Civic Reform Union, 501 Caxton Building, Cleveland, O.

If I am correct, friend Gregg stands ready to respond and take charge of any case of white slavery, cruelty to children, or anything along that line. Address him as above and he will have the matter looked into. And I want to say to my good friend Gregg that I not only give a hearty "amen," but, as you see, I have got it in print also.

SOME OF THE ADVANTAGES OF FLORIDA.

We take pleasure in clipping from an article in the *Florida Grower* the following, written by W. A. McRae, Commissioner of Agriculture. Our readers can rest assured the statements, coming from such a source, are unbiased:

The centers of continents are subjected to greater intensity of storms and variations of heat and cold than along sea-coasts. Kansas is the center of more uncertainty in weather than any other part of the Union. More dangerous storms occur in the central section of the Mississippi Valley than elsewhere in our country.

Florida is freer from dangerous winds than any other part of the South Atlantic or Gulf regions. Severe storm centers originating in the West Indies or Caribbean Sea pass across the Gulf and strike as a rule the coast adjacent to the mouth of the Mississippi and pass up that valley to the Ohio Valley and Lake region, and thence to the east, or else subside on the way. Florida has heavy rainfalls; but most of its rivers are tidal and seldom overflow their banks regardless of the quantity of water flowing into them from downpour.

Florida is more fortunate in having a purer atmosphere than any other of the States, it being duly swept by mild and constant winds from the seas on each side—modifying the heat of summer and the cold of winter—with air free from impurities, which is not possible in the interior region of the country, where it is liable to contamination from the land. Florida, too, is fortunate in having a larger supply of good fresh water in surface lakes and rivers and underground than any other State, not to speak of its unrivaled sea-coast—the longest in the Union.

Florida, therefore, has an ample supply of a remedy that's good for what ails you, no matter what it is, and it costs nothing. It is good externally and internally. Applied externally, with a bit of soap, it has magic effect on the skin—a refreshing experience always—and yet few understand that equal magic comes by its frequent internal use. We eat when hungry, and most people drink when thirsty. But thirst does not come until the tissues are waiting, and a United States public-health bulletin recently announced: "Taking in just enough water to satisfy thirst means living on a stagnant level with never a flood to wash out the old and stir the new." About 70 per cent of the human body is water. Have a drink; and the more you drink, the better. Water's about all you can get now in most Florida towns, and hasten the day when it will apply to every nook and corner of the State. Water is the world's one best drink. Have another!

And there's our good air to breathe. To breathe well helps one keep well. To live longer and better, the doctors say, make it a habit to take breathing exercises. Experts declare that the average man ordinarily uses about one-tenth of his lung space. Is it any wonder that diseases of the throat and lungs are so easily contracted? Florida air is safe to breathe. It comes in clean and pure from the seas.

It is estimated that the atmosphere—the vital part extending not more than six miles from the surface—carries annually from the sea to the land to flow back again to the sea no less than 130 millions of tons of water. The average annual rainfall of the United States is about 33 inches, while that of Florida is 53 inches.

Florida can in all truthfulness boast of its good

air, water, and healthfulness. Air and water are the prime essentials of life; and with plenty of the best of both, there is no reason why our state should not become one of the greatest in the Union—if there is any advantage in having the essentials of life.

I want to give a hearty amen to the sentence above which I have taken the liberty to put in italics. When we get good men into high offices that are not afraid to come out before the world and make such statements as that, we are certainly making progress toward the coming of God's kingdom.

HIGH-PRESSURE GARDENING

THE DUST MULCH IN TIME OF DROUTH.

On page 557, GLEANINGS for July 1, I spoke of the Barker cultivator for making a dust mulch, etc. Well, I so much enjoyed running the Barker cultivator that Mrs. Root remonstrated. She said I was cultivating the garden over and over, when there was not a weed to be seen. Well, it is true I did run the little cultivator when it seemed there was no particular need of it. One reason was that I was getting so much benefit from having a good sweat every forenoon or afternoon. By the way, toward seventy years ago I once heard my grandfather, Jesse Hart, say that he aimed to keep his garden in such condition that no one could find in it a tobacco-boxful of weeds by going all over the enclosure inside of the picket fence. I suppose this was at a time when my grandfather was almost too old to do much but make garden. Well, when I got my garden in such fine condition I thought about the tobacco-box story; and altho I do not have any "tobacco-box," and never had one, I think my garden must have been pretty nearly equal to my grandfather's. I distinctly remember the luscious melons (they did not have "cantaloups" in those days) that he used to get out of that garden and divide up among his children. Well, now, for the point of this garden story.

When the great drouth came on about the first of July there was a soft dust mulch, perhaps an inch deep or more, all thru my garden stuff; and altho we had five weeks of it right here in Medina without anything to call a summer shower, our garden scarcely seemed to mind it. We could not use the sprinkling system I have mentioned, because a flood destroyed the dam of our Medina waterworks, and the water board had cautioned everybody in our town to be careful about wasting water.

This dust mulch stood for four or five weeks without a sufficient sprinkle of rain to form any crust. Great cracks opened up in many places in our clay soil in consequence of the drouth; but our corn, beans, and everything that got a good start before the drouth did not seem to suffer at all. Some things that were planted late that had not got their roots far down were hurt by the drouth. I have before said something about preparing a dust mulch to overcome or offset the results of a drouth; but I never realized before what is possible in this direction. You can easily test it by experiment. Clay ground will never get dry and hard when there is a mulch of soft fine earth on the surface. I suppose other tools will form this dust mulch the same as the Barker cultivator; but I never saw any implement that would pulverize a clay soil and spread it over the surface so evenly as does the Barker cultivator.

MULCHING THE ORCHARD WITH SWEET CLOVER.

For years I have witnessed the contrast between a block of trees at our Ohio Experiment Station which were mulched, and another block of trees adjoining that had the best of cultivation. The mulched trees were far ahead; but I do not know that they ever tried mulching with sweet clover. So far as I know their mulch consisted of grass and weeds that were cut between the trees. The mulch extended out as far as the limbs reached, and it was kept heavy enough to keep down all weeds. The following from the *Ohio Farmer*, it occurs to me, is an excellent suggestion. One who has tried plowing and cultivating an orchard, and has also tried mulching, can realize what *cultivation* costs.

SWEET CLOVER IN THE ORCHARD.

I was interested in the attitude that Prof. W. F. Massey took in the April 29th issue of *The Ohio*

Farmer in regard to growing sweet clover in an orchard. I have made a careful study of this legume, and in my opinion no other cover crop can compare with it. Last spring I seeded an acre of my orchard to sweet clover which I mowed as soon as the crowns for this year's growth had formed, which was about Sept. 15.

The growth from this acre was sufficient to mulch every tree in the acre one foot deep and five feet in diameter. This year I will get two or three cuttings, each of which will be equal to the one made last fall. If this be used for mulch, which in course of time will decay, forming humus and in the mean time holding the moisture, I cannot see how it will rob the trees of moisture.

There is no doubt that the sweet clover will draw somewhat on the soil moisture, but compare it to the average grass that we find growing in orchards, which is usually a mixture of timothy and bluegrass. It has to rain a day and a night to soak this leathery covering, while with sweet clover the water finds easy access into the soil.

Furthermore, the large roots of the clover in decaying and opening not only the surface soil but also the subsoil, greatly increase the power of the soil to assimilate and hold large quantities of moisture. I will admit that to plow under a crop of crimson clover each year is good; but other things must be considered. It is a whole lot easier to say plow than to go into an orchard and do it. It is impossible to plow an orchard without injuring some trees, either with the plow or the horses' barking the trees. In the next place you cannot avoid ridges and dead furrows which, if your orchard is planted on a hill, will result in disastrous washes and gutters.

Here are the advantages of growing sweet clover in the orchard: 1. It makes sufficient growth to mulch the trees heavily, thereby retaining moisture. 2. It is a legume, therefore enriches the soil instead

of making it poorer. 3. By allowing the last crop to seed, it never requires re-seeding. 4. By not cutting the last crop until it has ripened its seed, then in raking this up and mulching with it, all danger of fire running over the orchard and destroying it is entirely overcome, which is one of the greatest if not the greatest disadvantage of the mulch system.—FRED SATTLEB, Tuscarawas Co., O.

SACHALINE, "EUREKA CLOVER."

Some eight or ten years ago, I am sorry to say, our journal gave quite a favorable report of sachaline as a new forage plant. In 1908 I gave notice that it had never made a growth to amount to much unless planted in exceedingly rich ground. I regretted that I had ever boomed the stuff; and the worst part of it was that no kind of stock seemed to care enough for it to eat it. We have just received the following:

EUREKA CLOVER.

Under the name "Eureka" clover there is now being advertised a forage plant for which enormous yields of green fodder are asserted. The plant in question is sachaline (*Polygonum sachalinense*), introduced into the United States in 1883, and much exploited in 1893 and for a few years thereafter.

Washington, D. C.

It seems that the business of booming some old and well-known plant under a new name is not altogether done away with.

Together with the above clipping came a couple of pages regarding sachaline, first and last.

TEMPERANCE

"THOU CHILD OF THE DEVIL; THOU ENEMY OF ALL RIGHTEUSNESS; WILT THOU NOT CEASE TO PERVERT THE RIGHT WAYS OF THE LORD?"

The above sounds a little rough, does it not, dear friends? But if Paul were alive and on earth now I believe he would say just that thing to the liquor people and their business. I was reminded of the above by the following, which I clip from the *American Issue*:

BOYS AND GIRLS OF MORE VALUE THAN NATION'S MATERIAL RESOURCES.

The Van Wert (Ohio) *Republican* hits the nail on the head, from an economic viewpoint, in discussing the liquor question. We quote from that paper:

"Life-insurance experts figure that each young man and woman of good habits and sound physique is an asset to the nation, as a producer or conservator of wealth, to the extent of \$8000. There are in the United States 50,000,000 children and young people under 25 years of age. At \$8000 apiece they are an asset of \$400,000,000,000. In mere dollars and cents the youth of our nation are worth more than our coal, our iron, our silver, our gold; more than the cattle on a thousand hills; more than grain from a million fields. And the legalized liquor-traffic is the ruthless destroyer of youth. It begins the work of destruction before birth; handicaps boys

and girls physically and morally, and renders tens of thousands not only unable to produce or conserve their quota of \$8000, but makes of them dependents and undesirable, an economic loss to the nation and a menace to its stability.

"BOOZE" SHOPS IN THE DISTRICT OF COLUMBIA.

Have we not as a people and as a nation progressed almost far enough toward God's kingdom to declare most vehemently that it is a burning shame and a disgrace to our nation that these hotbeds of all vice and iniquity should longer remain right close to the capital of our great nation? See the following, which I clip from the *American Issue*:

It is thought that the District of Columbia dry bill will pass the Senate at the short session, if not during this summer. Senator Vardaman, of Mississippi, in his speech in the Senate the other day said:

"If the question of saloons or no saloons for the District of Columbia should ever be put squarely to the American Senate, I have no doubt about the saloon hearing its death-knell in so far as action in this body is concerned. The American people demand it, and the interests of humanity call for such legislation. The open saloon is an evil without a mitigating incident, and I submit that the great capital

of the greatest nation on earth should not be marred by such social cancers and festering sores. It is not in keeping with the highest order of Christian civilization.

IT PAYS TO BE DRY AND "DECENT."

When I was fourteen years old I attended high school in Wellsville, Ohio, one winter. It was during this winter that I made my first experiments in electricity, and at the same time I succeeded in exploding a mixture of air and gas by means of an electric spark. Little did I think at that time my cheap, rude, boyish apparatus was going to be the forerunner of the automobile that is now, I might almost say, turning the world upside down. For the above reason I was interested in the clipping below, which I take from the *American Issue*:

NO SALOONS, LESS CRIME; JAILER MORGAN TELLS OF CHANGE IN CHARLESTON, W. VA.; IT PAYS TO BE DRY; IF YOU DOUBT IT, ASK THE CITY OF WELLSVILLE.

There is little wonder that Lisbon, Columbiana Co., voted dry recently. The voters had only to look across the county to the city of Wellsville to see the benefits of a saloonless town. In fact, they had the benefits right at home, but quite often do not appreciate them as much as when seen from a distance.

Wellsville, a dry city of 8000 population, has nearly \$60,000 on deposit in the Postal Savings Bank. Besides this amount, she has \$30,000 of postal-savings deposits invested in United States bonds.

In the same county is the wet city of East Liverpool with a population over three times as large as that of dry Wellsville, and yet the deposits in her Postal Savings Bank amount to only \$16,000.

Furthermore, in two years in dry Wellsville the city has reduced the bonded indebtedness by \$50,000, and this year will pay off \$30,000 more of its indebtedness. The past two years dry Wellsville has spent \$140,000 in building new churches; \$95,000 has been spent on a new high-school building, and \$15,000 on a public-library building.

The above tells why in a pecuniary sense it pays to be dry; and the next clipping from the same paper shows how it pays to be dry and *decent*.

BAD BUSINESS; INSURANCE COMPANY DOES NOT WANT SALOONKEEPERS FOR PATRONS.

An agent of one of the big New York life-insurance companies took the application of a saloonkeeper for an endowment policy. The company rejected the application. The agent wrote to the home office and registered a kick because the application was not accepted. In reply the company wrote the agent in part as follows:

"So far as we are concerned we do not believe risks of this class will contribute to a satisfactory mortality in the first place, and in the second place we do not care to write our business among that class in the community. We think it would do the company harm rather than good, even if it got a few hundred thousand dollars of seemingly good business on the endowment plan every year, if the holders of these policies were saloonkeepers. We do not want the name of being a saloonkeepers' company and of taking the grade of risks which are refused by the leading and conservatively managed companies of the country.

"Life-insurance companies are engaged in encouraging thrift, protecting homes, and in promoting the welfare of the individual, the community, and the state. Saloonkeepers—all of them—are engaged in discouraging thrift, destroying homes, and in injuring the individual, the community, and the state. There is nothing in common between us, and we do not even care for business relations with them."

I am glad to know that now even insurance companies do not care to take money that is gotten by selling "booze."

THE ANTI-CIGARETTE LEAGUE OF AMERICA.

This is located at 1119 Woman's Temple, Chicago. There are something like forty or fifty different officers, including an advisory council. This is headed by P. P. Claxton, U. S. Commissioner of Education, as Honorary President. By the way, is it not remarkably appropriate and fitting that the *Commissioner of Education for the United States* should be president of this much-needed organization? In the advisory council we notice the names of Judge Ben B. Lindsey, of Colorado; Thomas A. Edison, Wilbur F. Crafts, J. H. Kellogg, M. D.; Ira Landrith, of Tennessee; Daniel A. Poling, of Ohio, and a host of good men and women of our nation. Last, but not least, as the *superintendent and founder*, is the name of Lucy Page Gaston—just a little woman, but a "live wire," and no mistake. By the way, among the other things that I have to thank God for is the fact that I have so many good strong friends who are standing away up in the crusade for the betterment of humanity. I am going to let you get a glimpse of a letter just received from Miss Gaston:

Dear Mr. Root:—I am very glad indeed to know that you keep up your fight on tobacco. The story of your practical work ought to be passed along, and I may find a way to publish it. We have such an abundance of good material, only waiting the financial ability to get it to the world.

Hoping that we may some time have the opportunity of meeting again, I am

Yours for clean living,

Chicago, Ill., Aug. 11. LUCY PAGE GASTON.

P. S.—I wish you were 20 years younger. My dear mother is in her 84th year, and is as bright as ever. L. P. G.

When I came to the postscript I had to have a big laugh; and I am still wondering just *why* she wishes I were "twenty years younger." Please notice just above her signature, "Yours for clean living." Well, now, this clean living is the explanation for her mother being as bright as ever, even up to her 84th year; and I think, also, it is the "clean living" that has enabled me to feel so bright and well this 15th day of August, 1916.

Why Not Declare War?

against weak colonies, old queens, and diseases by buying and requeening with my young, vigorous, three-banded Italians. They are bred for honey and gentleness. 50 CENTS each; \$45.00 per 100. This is a first-class queen at a cheap price. Guaranteed to be as good as money can buy; to give perfect satisfaction, and reach you in first-class condition.

N. Forehand . . Fort Deposit, Ala.

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

Please Notice Change of Prices of Leininger's Strain of Italians

We will sell untested Italian queens at 75 cts. each; six, \$4.50; tested, one year old, at 80 cts. each; six, \$4.80; tested, young, \$1.25; six, \$6.50. Breeders, \$10 each. We guarantee that all queens will reach you in good condition, to be purely mated, and give satisfaction.

Fred S. Leininger & Son . . Delphos, Ohio

Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September, 75 cts. each; \$8.00 per dozen. Select tested, \$1.50. Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, ... Glenwood, Michigan



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For resisting foul brood no bee can be found that will excel ours. Requeen now while you can get them cheap.

Three-banded and Golden Italian

Untested queens . . .	75c
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These queens are guaranteed to be as good as money can buy. They are bred by the same and with the care as the high-priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey-gathering, gentleness, and not inclined to swarm.

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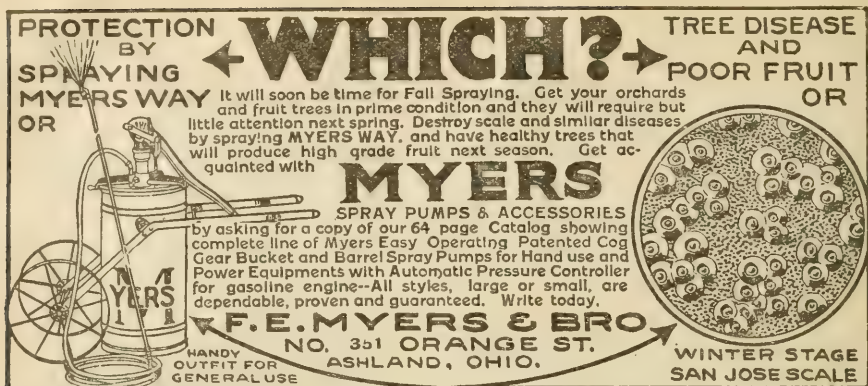
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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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A No. 1 clover in 120-lb. cases at 8 cts.
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FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

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FOR SALE.—White-clover extracted honey in 60-lb. cans, two cans to a case.
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Clover honey, extracted, in 60-lb. cans; comb in $4\frac{1}{4} \times 1\frac{1}{4}$ sections. Write for prices, etc.
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Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

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FOR SALE.—Choice New York State clover honey in 60-lb. cans, two in a case, at $7\frac{1}{2}$ cts. per lb., f. o. b. Delanson, N. Y. FRANK C. ALEXANDER.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at $8\frac{1}{2}$ cts. per lb. Also fancy and No. 1 clover comb honey, $4\frac{1}{4} \times 1\frac{1}{4}$ sections.
MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Extra-quality white-clover honey, $8\frac{1}{2}$ cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone \$1.00. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Best quality white-clover extracted honey in new 60-lb. cans, 2 cans per case. State how much you can use, and I will quote you price.
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FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb.
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New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.
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FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb. net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

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WANTED.—Honey in carlots or less. Send sample.
O. N. BALDWIN, Baxter, Kan.

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW CO., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

Beeswax bought and sold. STROHMEYER & ARPE CO., 139 Franklin St., New York.

WANTED.—Best grades of white-clover comb and extracted honey.
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BEE SWAX WANTED.—For manufacture into Weed Process Foundation on shares.
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WANTED.—Comb honey. I can use about 1000 sections by Jan. 1, 1917. The one offering the best goods at lowest price gets my cash order. Give full description in first letter. R. V. STROUT, 325 11th St., S. W., Washington, D. C.

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HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—One 2-horse steam-engine in good working order, \$12.00.
J. W. UTTER, Amity, Orange Co., N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts., prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordlonville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

REAL ESTATE

FOR SALE.—A nice twenty-acre farm with 100 swarms of bees, and large ginseng-beds; also 4800 pounds of extra-nice raspberry-clover honey.

L. FRANCISCO, Mosinee, Wis.

YOU CAN DO BETTER ON A SOUTHERN FARM. Send for a year's subscription free to our beautifully illustrated magazine, The Southern Homeseeker, which tells all about good low-priced land and southern opportunities. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 Ry Exchange, Chicago.

WORTH LOOKING OVER by any one wanting to come west to escape the rigors of an eastern winter. Three-room 12x12 California house with furniture; barn, workshop, and tools; over 200 head of poultry, yards, etc.; 70 stands of bees; ramada, honey-house, extractor, tank equipment complete; 3 milch cows and milk route; 2 head of horses; harness, buggy, small wagon, mower rake, etc. The whole as one lot, \$1600 cash.

JOSEPH GRAY, Heber, Cal.

FOR SALE.—Modern bungalow and apiary; 5½ acres, partly wooded (including some large and over 200 young basswood-trees); hot-water heat; electric lights; concrete basement, 36x28; \$6000; ½ cash, rest to suit. Will accept honey at 8 cts. Postoffice ¼ mile; 2 railroads; Chicago 18 miles; 349-ft. front on Archer Ave. car line (Lincoln Highway), near Desplaines River and the big canal; adjacent land held at \$1000 per acre; 60 colonies bees; 100 3½-story 10-frame hives; power extractor; gas-engine, tank, etc. Honey-house 28x30. Room for 200 colonies in 40-foot-deep gully. MRS. MAY BROWN, owner, box 17, Willow Springs, Ill.

WANTS AND EXCHANGES

WANTED.—A 2-frame latest improved extractor, practically as good as new, and cheap.

JOHN M. WARE, Opelousas, La.

WANTED.—To exchange queens for honey, either my own or Dr. Miller's strain. Send sample.

CURD WALKER, Jellico, Tenn.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.

J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—No better Italian queens; one, \$1.00; six, \$5.00. J. W. ROMBERGER, St. Joseph, Mo.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

FOR SALE.—Full colonies fine Italian bees at bargain prices. J. Y. TRIGG, Valliant, Okla.

FOR SALE.—36 colonies of bees; hives and bees in good condition. EDW. NESVACH, Mazomanie, Wis.

FOR SALE.—Fifty colonies of bees at Albright, W. Va., on M. & K. R. R. C. F. WELCH, Albright, W. Va.

FOR SALE.—Untested golden Italian queens, 60 cts.; hybrid queens, 25 cts. each. J. F. MICHAEL, Winchester, Ind.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Northern-bred Italian queens of the E. E. Mott strain; untested, 75 cts.; guaranteed, 90 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

FOR SALE.—Two yards of bees in the gallberry belt near Valdosta; reason for selling, too many bees. J. W. SHERMAN, Valdosta, Ga.

FOR SALE.—500 colonies of bees; sweet-clover and alfalfa grow in abundance. For particulars address GEM STATE APIARIES, box 67, Rigby, Idaho.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

FOR SALE.—Ten colonies of yellow-to-tip, extra gentle Italian bees, \$4.00 to \$5.00 a colony. J. F. LOWE, New Brunswick, N. J.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y., East End.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Siler City, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—As other interests demand my attention I offer 180 strong colonies of bees and complete outfit at a bargain. A. E. AULT, Bradentown, Fla.

WANTED.—Experienced help for two months or more. State in first letter salary expected with board. References requested. JOHN W. CASH, Bogart, Ga.

Extra select untested golden and three-banded Italian queens, 50 cts. each; 6 for \$2.95; 12 for \$5.75. Satisfaction guaranteed.

G. H. MERRILL, Pickens, S. C.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 75 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.

HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

FOR SALE.—41 colonies of bees; 23 colonies of them are in 8-frame dovetailed hives; 10 in 9-frame hives; 8 in odd-sized hives. Most of these hives are new, made of cypress, pine, and yellow poplar. Two supers with each brood-chamber. A good bargain. Write us your offer. PURITY HONEY CO., Botkins, O.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.

G. W. MOON, 1904 Park Ave., Little Rock, Ark.

HOLLOPETER's strain of hustling three-banded Italian queens by return mail at 75 cts. each; 6 \$4.00; 12, \$8.00; 25, \$15.00. Tested queen free with each order for 12 or more untested queens. Satisfaction given. J. B. HOLLOPETER, Pentz, Pa.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 338J, Rt. 6, San Jose, Cal.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Goldens and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

FOR SALE.—250 colonies high-grade Italian bees in modern equipment for comb and extracted honey. A bargain if sold at once. Fine location and splendid opportunity for active party to enter the bee and honey business in this new country. Unlimited virgin pasture. A. W. F. LEE, Cordell, Okla.

Fine three-banded untested Italian queens, northern bred, each 80 cts.; ten for \$7.00; fifty for \$30. Safe delivery guaranteed. M. H. HUNT & SON, N. Cedar Ave., Lansing, Mich.

My Breeder, a daughter of one Dr. Miller's best queens, is proving superior to any I have been able to procure. Daughters of this queen, untested, 75 cts. each; \$8.00 per dozen. J. I. BANKS, Dowlstown, Tenn.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

Choice Italian, Carniolan, or Caucasian queens; untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

The Stanley Improved Cell-starting Hive and Queen-rearing Outfit, complete, \$5.00. The same with a choice breeder, \$6.00. Warranted Italian queen, 60 cts. each. Tested, \$1.00. Virgin, 25 cts. Choice breeding queens, \$2.25. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

NOTICE TO HONEY-PRODUCERS.—We will send by return mail three-banded Italian queens at 50 cts. each. Lots of 25 or more, 45 cts. each. A choice lot of select tested at \$1.00 each; 25 or more, 75 cts. each. No disease. Safe arrival guaranteed.

MARCHANT BROS., Union Springs, Ala.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10; select tested, one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

THE BARGAIN OF THE SEASON.—Listen: *The Beekeepers' Review* for two years would be \$2.00; 10 three-banded Italian untested queens at 50 cts. would be \$5.00; total, \$7.00. Send us only \$5.00 and receive the *Review* for 1916, 1917, mailing you the back numbers for this year, and 10 untested Italian queens direct from our breeders in the South. Prompt delivery. To get this exceptional bargain, address all orders to THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—Fine Italian queens, untested, 75 cts. each; or 6 for \$4.00; a few select tested, \$1.00 each. Bees and queens free all disease. Satisfaction guaranteed. EDW. A. REDDOUT, bx 43, Lysander, N.Y.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

Will sell half-interest in 146 colonies bees and equipment. Good location, no disease, clover and basswood district; need man to take part to outyard. Must be of clean character—no tobacco nor liquor.

L. W. MAXWELL, Turkey River, Iowa.

FOR SALE.—Fifty colonies of bees in 10-frame L. hives, comb built on full foundation; 120 Danz. comb-honey supers; 1 Cowan 2-frame extractor; 8 Holtermann winter cases; a lot of bee-books, etc.

FRANCIS W. GRAVELY, Care Smithdeal Business College, Richmond, Va.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens, add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

I am now breeding from one of Dr. C. C. Miller's world's record-breaking breeding queens, purchased by his instruction. Prices of her daughters, one, 75 cts.; 6, \$4.25; 12, \$8.00; 24, \$15.00; \$60.00 per 100. My own stock I've never seen better. 50 cts. each; \$45.00 per 100. Tested, \$1.00 each. Pure mating; no disease; safe arrival guaranteed.

CURD WALKER, Queen-breeder Jellico, Tenn.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

Special Notices by A. I. Root

GOOD BOOKS FOR A SMALL AMOUNT OF MONEY.

Some thirty years ago we sold hundreds of copies of Pilgrim's Progress. The edition we had contained 384 pages, with illustrations all thru. The book is nicely bound, and makes a beautiful present. But because it was published so long ago we offer it now for only 50 cents; by mail, 60. My impression is that it was originally a \$2.00 book. We have only seven copies left.

Pilgrim's Progress was first published about 260 years ago, and has been translated into more languages than any other volume, the Bible alone excepted; and probably no other book (the Bible again excepted) has done more to keep alive the true spirit of Christianity than this wonderful allegory. The variety of characters Bunyan introduces with such vividness surpasses that in any other volume of human production. No person can be said to have read the Bible without having read this ever interesting volume; and one who has not read it is certainly greatly lacking in a knowledge of English literature.

HONEY AT THE BIG FAIRS

MISSOURI STATE FAIR.

Note.—Exhibits must be in place by 6 o'clock P. M., Friday, September 22, and must have been produced in the apiary of the exhibitor.

All extracted honey must be exhibited in glass receptacles.

Class	1st	2d	3d
1 Case 12 sections honey from fall flowers	\$ 6.00	\$3.50	
2 Case 12 sections white clover or linden honey	6.00	3.50	
3 Largest display comb honey, not including the above..	10.00	6.00	\$3.00
4 20 pounds extracted clover or linden honey	6.00	3.50	
5 20 pounds extracted honey fall flowers	6.00	3.50	
6 Largest display of extracted honey, not including above	10.00	6.00	3.00
7 10 pounds beeswax	3.00	2.00	
8 Display of beeswax, not less than 20 pounds, not including the above	7.00	4.00	2.00
9 Most attractive display of comb and extracted honey, wax, bees, and implements, not including any of the above	15.00	8.00	4.00
10 Golden Italian bees and queen in single-comb observatory hive	6.00	4.00	2.50
11 Three-banded Italian bees and queen in single-comb observatory hive	6.00	4.00	2.50
12 Most attractive comb of sealed honey in large or half-depth frame	3.00	2.00	

COLORADO STATE FAIR.

F. C. Burfield, Rocky Ford, Superintendent.

1. Goods properly labeled may be sent by express prepaid to the secretary of the fair.

2. Entries close Monday, September 18.

3. All exhibits must be in place by 5 P. M., Monday, September 18, 1916.

4. The judges will award the premiums in this Department Tuesday, September 19, at 9 A. M.

5. No article on exhibition can be removed until the close of the fair.

All honey and beeswax must be Colorado products.

1 Italian bees and queen in single-comb observatory hives	\$6.00	\$4.00	Ribbon
2 Carniolan bees and queen in single-comb observatory hives	3.00	2.00	Ribbon
3 Caucasian bees and queen in single-comb observatory hive	3.00	2.00	Ribbon
4 Largest and best display of bees of various races in observatory hives	6.00	4.00	Ribbon
5 Largest display of queens of various races in mailing-cages	3.00	1.00	Ribbon
6 Best case white comb honey	4.00	2.00	Ribbon
7 Best case of light-amber comb honey	4.00	2.00	Ribbon
8 Best and largest display of comb honey	6.00	4.00	Ribbon
9 Best display of special designs	6.00	4.00	Ribbon
10 Best dozen jars of white extracted honey	2.00	1.00	Ribbon
11 Best dozen jars of light-amber extracted honey	3.00	2.00	Ribbon
12 Best and largest display of extracted honey	5.00	3.00	Ribbon
13 Best display of extracted honey in granulated form	3.00	2.00	Ribbon
14 Best 10 lbs. yellow beeswax	2.00	1.00	Ribbon
15 Best and largest display of beeswax	4.00	2.00	Ribbon
16 Best display of special designs in beeswax	4.00	2.00	Ribbon
17 Best display of honey-producing plants, mounted.	2.00	1.00	Ribbon
18 Best display of fruits preserved in honey	2.00	1.00	Ribbon
19 Most instructive display of apiarian products and of the various uses made of honey and beeswax....	15.00	8.00	Ribbon

SPECIAL PREMIUMS.

The Board of County Commissioners of Pueblo County offer the following premiums for products of bees owned in Pueblo County:
20 Dozen jars white extracted honey..\$2.00 \$1.00
21 Display extracted honey 4.00 2.00

VERMONT STATE FAIR.

September 12, 13, 14, 15.

37 Best display of bees and honey	\$6.00	\$4.00	\$2.00
38 Sample of honey, 3 pounds or more	3.00	2.00	1.00
39 Best extracted honey, in glass, 3 pounds or more.....	3.00	2.00	1.00
40 Display of honey, granulated or candied	4.00	2.00	1.00
41 White-clover honey, not less than 3 pounds	3.00	2.00	1.00

BURLINGTON (IOWA) TRI-STATE FAIR.

1211 Display of comb honey, quality, quantity, and manner of putting up for market considered	\$5.00	\$3.00	\$2.00
1212 Display of extracted honey, quality, quantity, and manner of putting up for market considered	5.00	3.00	2.00
1213 Display of beeswax, quantity and quality to be considered	3.00	2.00	1.00
1214 Honey vinegar, not less than one gallon, in glass	5.00	3.00	2.00
1215 One-frame observatory hive Italian bees, showing queen, workers, and brood in all stages	10.00	8.00	6.00
Demonstration by W. F. Reppert.			

Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

60-lb. Honey-Cans

Good second-hand, fit to refill with honey for use again. . .

For shipment from New York, Philadelphia, or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

The A. I. Root Company

New York Philadelphia Medina, Ohio

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on	1 to	10 queens, 50 cts. each
"	11 to	25 queens, 45 cts. each
"	26 to	100 queens, 40 cts. each
"	101 to	1000 queens, 38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal, Dadant & Sons, any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

TRADE NOTES

BEE SWAX MARKET.

There is an improved export demand for beeswax which warrants our increasing our price to the rate prevailing before the last drop—namely, 28 cents cash, 30 cts. trade delivered at Medina, New York, or Philadelphia. If you have a supply available, now is a good time to convert it into money or goods.

CHIPPED TUMBLERS CHEAP.

We again have a supply of two or three hundred cases of 2 dozen each of tin-top tumblers holding 6 1/2 oz. of honey, or 1/4 lb. of jelly. They have the edges slightly chipped so they cannot be sealed airtight for shipping, but will serve as a cheap container for some uses. We offer them, while they last, at \$2.00 for ten cases of 2 dozen each, including the tin tops.

METAL-TOP COVERS ADVANCED IN PRICE.

The increased cost of galvanized sheet metal has made it necessary to mark up the price on all metal-top hive-covers, and all hives equipped with them, 5 cents each. This applies to such covers in our catalog as are listed under the letters R, K, and Y, both eight-frame and ten-frame. This advance applies to retail, wholesale, and jobbing prices.

SQUARE TIN CANS.

The greatly advanced prices on tin plate will make higher prices on square tin cans imperative when next catalog is printed. On such stock as we buy now at distant points where we are not covered by a contract we have to pay prices which are more than 20 per cent higher than we paid last winter. We can continue the old prices for the present from Medina only, because we have a good supply bought at old prices. The new prices effective now from our branch offices and agents, except as shipment is made from Medina, are as follows:

5-gal. square cans, 1 in box, 60c; 10 boxes, \$5.50.
5-gal. square cans, 2 in box, 90c; 10 boxes, \$8.50.
5-gal. sq. cans, 27 to crate without boxes, 30c each.
1-gal. sq. cans, 10 in a box, \$1.70; 10 boxes, \$16.
1-gal. square cans, 100 to a crate, \$12.00 per 100.
1/2-gal. sq. cans, 12 in a box, \$1.70; 10 boxes, \$16.
1/2-gal. square cans, 100 to a crate, \$10.00 per 100.
1/4-gal. sq. cans, 24 to a box, \$2.60; 10 boxes, \$25.
1/4-gal. square cans, 100 to a crate, \$9.00 per 100.

BUSHEL BOXES.

We have on hand, ready for immediate shipment, a good stock of these boxes, packed as shown in catalog. They are made with oak corner posts and bottom end slats to receive the nails, the remainder of the box being basswood. They are very convenient, and popular for handling potatoes, apples, onions, and other farm crops. They hold a heaped bushel level full, so they can be stacked any height desired. To reduce stock we offer them for a short time at the following special prices:

All slatted bushel boxes, per crate of 14, \$2.25
Slatted bushel boxes, per crate of 12, \$2.10
Galvanized bound boxes, per crate of 12, \$2.75.
In lots of 10 crates or more, 5 per cent discount.

The all-slatted is the cheapest, and the most popular style. Two are nailed in each package, and sufficient nails are included for the remainder.

EARLY-ORDER CASH DISCOUNT.

The usual custom of allowing a discount for early cash orders for goods for next season's use is continued this season. The discount begins with 5 per cent for September cash orders instead of 7, which was given in former years. The discount applies to the latest revised prices with the usual exceptions on certain classes of goods. No discount will apply on orders for shipping-cases, cartons, labels, tin and glass honey-packages, bees, queens, paint, bushel-boxes, hotbed sash, seeds, honey, and printed matter. Where goods named in the list of exceptions form not more than 20 per cent of a general order for hives and other beekeepers' supplies, the discount may be taken on the entire order. The discount is allowed only for payment of cash during the month of September, whether goods are shipped or not. For payment in October the discount will be 4 per cent; during November, 3 per cent; during December, 2 per cent.

THE A. I. ROOT CO., MEDINA, O.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE ABC OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$..... to cover the cost.

Name

Street Address or R. F. D.

Town

State

BEE-LINE QUEENS

Quality Service

Golden and Three-banded Italians

Sent by Return Mail

Plenty of queens till Dec. 1. Safe arrival and satisfaction are guaranteed. This is backed up---we mean what we say---if a queen or queens are not satisfactory we will replace them or refund the money you paid us for them. No disease of any kind in my apiaries. Health certificate with each shipment.

Prices till December 1: Untested, one for 75c, six for \$4.00; any over this number 60c each. Tested, \$1.00 each, six for \$5.00. Select tested, \$1.50 each.

B. M. Caraway, Mathis, Texas

Bee-line Apiaries

Reference: Mathis First State Bank, Mathis, Texas.

Better Queens and Bees for Less Money

20 years of select breeding gives us bees and queens of highest quality---Queens for Honey production---Queens of unusual vitality---Queens that successfully resist European foul brood

Our select colonies for breeding purposes, larvæ, and select drones are those of the highest standard, the choice of over 1000 hustling honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells, which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get large well nourished cells, which in turn produce large, long-lived, and hardy queens that give workers unexcelled for honey production. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved, and the best queens produced.

Price List of our Three-banded and Golden Italian Queens. Ready by Return Mail.
Untested.....50 cts. each or \$45.00 per 100 Tested.....\$1.00 each or \$ 90.00 per 100
Select Untested..65 cts. each or \$60.00 per 100 Select Tested..\$1.25 each or \$115.00 per 100
All queens are warranted purely mated. Wings clipped free of charge.

Price List of Our Swarms of Bees for Fall Increase.

1-lb. swarms with select queens.....	\$1.75	2-lb. swarms with select queens.....	\$2.50
3-lb. swarms with select queens.....	3.50	5-lb. swarms with select queens.....	5.00

All orders filled at once, or as desired.

We have no disease of any kind. Satisfaction we always guarantee.

M. C. Berry & Company Hayneville, Alabama



Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS . . . FORT DEPOSIT, ALABAMA



Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July		August and later	
Select Tested Queens.....	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Tested Queens.....	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Untested Queens.....	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00	
Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.			

Add price of queen. If any of our untested queens should prove to be mated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA.

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS.

The Root Strain of Bees have shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

PRICES.—Our regular price is \$1.50 in June and \$1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for \$1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company . . . Medina, Ohio



Gleanings in Bee Culture

Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 4 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 19 crates of 50 each 10-inch, 2-row, at \$4.00 per crate.
- 15 crates of 50 each, 6¼-in, 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-pound cases, at \$4.00 per crate.

All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

There are also for the same size section, packed 10 in a crate:

- 10 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
- 4 crates of 10 each, 6¼-inch, 2-row, at 85 cts. per crate.
- 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

For the 4¼x1½ beeway section we have:

- 4 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.
- 6 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.
- 12 crates of 50 each, 11¾-inch, 2-row, for 12 sections, at \$4.00 per crate.
- 6 crates of 10 each, 12-lb. safety cases with cartons at \$1.20 per crate.
- 3 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.
- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

For 24 sections, 4¼x1½ plain:

- 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
- 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

For 12 sections 4x5x1½:

- 26 crates of 50 each 3-row cases, at \$4.00 per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½x5x1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼x1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼x1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½x5x1½ sections at 85 cts. per crate.
- 1 crate, 10 each, 12-lb. cases for 4x5x1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4x5x1½ sections, including safety cartons \$1.20 per crate.

At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼x1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼x1½ sections at \$4.50 per crate.
- 7 crates, 50 each, 12-lb. cases for 3½x5x1½ sections, at \$4.00 per crate.
- 5 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Philadelphia Branch.

- 1 gross ¼-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each ½-lb. square jars with cork, at 90 cts. per case.

At Washington, D. C.

- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 4 dozen ½-lb. Hersher jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hersher jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1....holding 24 sections, 4 1/4 x 1 3/4, showing 1.....	10,	\$2.00;	100,	\$18.00
No. 3....holding 12 sections, 4 1/2 x 1 3/8, showing 3.....	10,	\$2.00;	100,	\$18.00
No. 1 1/2....holding 24 sections, 4 1/4 x 1 1/2, showing 4.....	10,	\$1.90;	100,	\$17.00
No. 6....holding 24 sections, 3 5/8 x 5 x 1 1/2, showing 1.....	10,	\$1.80;	100,	\$16.00
No. 8....holding 24 sections, 4x5x1 3/8, showing 4.....	10,	\$1.80;	100,	\$16.00

Shipping-cases with Glass.

		with 3-inch glass		with 2-inch glass	
No. 11....Same as No. 1....	Nailed, 35c; in flat, 1,	25c; 10,	\$2.30;	100,	\$21.00.....
No. 13....Same as No. 3....	Nailed, 22c; in flat, 1,	15c; 10,	\$1.40;	100,	\$12.50.....
No. 11 1/2....Same as No. 1 1/2....	Nailed, 35c; in flat, 1,	25c; 10,	\$2.20;	100,	\$20.00.....
No. 16....Same as No. 6....	Nailed, 39c; in flat, 1,	32c; 10,	\$2.10;	100,	\$19.00.....
No. 18....Same as No. 8....	Nailed, 30c; in flat, 1,	22c; 10,	\$2.10;	100,	\$19.00.....

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping." postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L. A.," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

WARDELL'S ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	-	September and October, \$1.00	Tested	-	September and October, \$2.00
Select Untested	"	" " " 1.25	Select Tested	"	" " " 3.00

Our supply of untested and select untested is likely to be small after October.

Prompt delivery assured. Address all orders to **F. J. Wardell, Uhrichsville, Ohio**



Queens--Queens--Queens. We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS **FORT DEPOSIT, ALABAMA**



QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Tested tested ..	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb pkg. bees....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
Bellevue, Ohio

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more, for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquiries:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me. C. O. Miller.

Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens. Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries
Mayhew, Miss.

Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September, 75 cts. each; \$8.00 per dozen. Select tested, \$1.50. Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, ... Glenwood, Michigan

Gleanings in Bee Culture

E. R. ROOT

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A. I. ROOT

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H. H. ROOT

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Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, E. G. Baldwin, Grace Allen.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CLEVELAND.—Only very little new comb honey in market yet. Demand also continues light. There is still a little old honey in market at \$2.00 to \$3.25 per case as to quality and condition. Comb honey, new, fancy, brings \$3.85 to \$4.00.

C. CHANDLER'S SONS.

Cleveland, Sept. 6.

ALBANY.—On account of the threatened railroad strike and also the fact that few producers have any great amount of honey ready to ship, there is but little stock on our market, and it is just as well with present warm weather and limited demand. A large stock would tend to weaken prices. Comb honey, per case of 20 combs, \$2.50 to \$3.00, according to weight. No. 1 buckwheat of 20 combs, \$2.50 to in cans, 7 to 8; amber in cans, 7.

CHARLES MACCULLOUGH.

Albany, N. Y., Sept. 9.

ST. LOUIS.—Our honey market is quiet. Receipts of extracted honey have been quite large within the last two weeks. Our quotations are unchanged, but no firm price has yet been established on new crop of comb honey. We quote extra fancy, per case, \$3.50 to \$3.75; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.50 to \$2.75. Extracted white brings 9 cts.; light amber in cans, 8 cts.; amber, in cans, 6½; barrels, 6 cts. Clean average yellow beeswax brings 28½ cts.

St. Louis, Sept. 7.

KANSAS CITY.—There is quite a little honey on our market. The demand in the small towns is somewhat slow, on account of the heavy crop of native honey produced early in the season. The city is well supplied, selling at the following prices: Fancy, \$3.25; No. 1, \$3.25; No. 2, \$2.75 to \$2.90. Strictly fancy white extracted, 8½; light amber, in cans, 7½; amber, in cans, 7c. Clean, average yellow beeswax brings 25c.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 11.

CHICAGO.—The receipts of the yield of 1916 from the adjacent territory are liberal, and the quality is of the best; sales are being made at the prices named, but the supply is in excess of demand, as it is early. Prospects of sales are encouraging. This market sells by weight; extra fancy per pound, 16 cts., in closed cartons; fancy, 15 cts. with or without cartons; No. 1, 13 to 14 cts., with or without cartons; No. 2, 8 to 12 cts., with or without cartons. Extracted white, per lb., 7 to 9 cts.; light amber, in cans, 7 to 8 cts.; amber, in cans, 5 to 7 cts. Clean, average yellow beeswax brings 30 to 32 cts.

R. A. BURNETT & CO.

Chicago, Sept. 2.

MATANZAS.—The price of honey in this market, at the present time, is 45 cts. per gallon, including barrel. Beeswax per lb. 29 cts.

ADOLFO MARZOL

Matanzas, Cuba, Sept. 6.

Deposit your Savings
with
The SAVINGS
DEPOSIT BANK CO.
of **MEDINA, O.**
The Bank that pays 4%
Write for Information

A.T. SPITZER PRESIDENT	E.R. ROOT VICE-PRESIDENT	E.B. SPITZER CASHIER
----------------------------------	------------------------------------	--------------------------------

ASSETS OVER ONE MILLION DOLLARS



Fine Yellow Italian Tested Queens

only \$1 each, or 1 will send 3 for \$2. Carload Italian bees at \$3.90 a stand, 8 and 10 Hoffman frames, if sold this fall; 200 stands. Will take \$4.50 next spring.
J. L. FAJEN, Stover, Mo.

Special Notice by A. I. Root.

FRAUDULENT ADVERTISING.

It rejoices my heart to find the following, which I clip from *Farm Life*:

ADVERTISE HONESTLY SAYS THE ASSOCIATION OF NATIONAL ADVERTISERS.

The following Declaration of Principles was unanimously adopted by this Association at Dayton, Ohio, May 5, 1916:

Resolved, That we, members of the Association of National Advertisers, are opposed to advertising of the following kinds:

All advertising that is fraudulent or questionable, whether financial, medical, or any other; all advertising that is indecent, vulgar, or suggestive, either in theme or treatment; that is "blind" or ambiguous in wording, and calculated to mislead; that makes false, unwarranted, or exaggerated claims; that makes uncalled-for reflections on competitors or competitive goods; that makes misleading free offers; all advertising to laymen of products containing habit-forming or dangerous drugs; all advertising that makes remedial, relief, or curative claims, either directly or by inference, that are not justified by the facts or common experience; and any other advertising that may cause money loss to the reader or injury in health or morals or loss of confidence in reputable advertising and honorable business.

Resolved, That we recognize our own obligation as advertisers to conform to these principles.

Resolved, That we urge upon all publishers and upon all sellers of advertising space or service, a strict adherence to these principles, and that, in so far as the exigencies of our individual business will permit, we direct our advertising to those mediums which make the observance of these principles their rule and practice.

The Association of National Advertisers represents the leading advertisers of America. They stand as one man behind these resolutions. They are determined to do everything in their power to make it impossible for the advertising fraud to live.

Convention Notice

The annual meeting of the Northern Illinois and Southern Wisconsin beekeepers' association will be held in the supervisor's room in the courthouse in Rockford, Ill., on Tuesday, Oct. 17, 1916. All interested in bees are cordially invited to attend.

R. KENNEDY, Sec.

Rockford, Ill., Sept. 1.

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

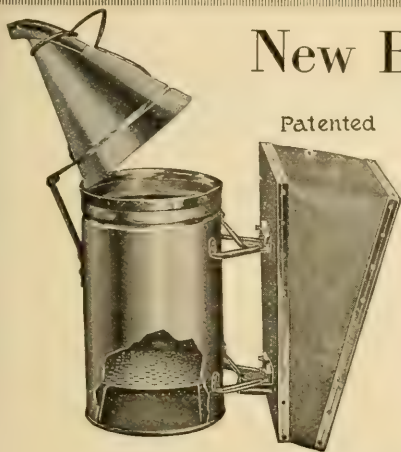
We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue



New Bingham Bee Smoker

Patented

has been on the market nearly forty years, and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

Smoke Engine, 4-inch stove.....	\$1.25
Doctor, 3 1/2-inch stove	.85
Two above sizes incopper, 50 cts. extra.	
Conqueror, 3-inch stove	.75
Little Wonder, 2 1/2-inch stove	.50
Hinged cover on two larger sizes. Postage extra.	

TIN HONEY-CANS---LOW PRICES

Five-pound friction-top pails, lots of 50 at \$2.75; 100 lots, \$5.20; crates of 203 at \$10.00.

Ten-pound Friction-top pails, lots of 50 at \$4.00; 100 lots, \$7.50; crates of 113 at \$8.30; 565 at \$10.00, F. O. B. Chicago.

Sixty-pound cans, two in a case, 70c per case. Quantity lots, 67c per case; crates of 50 at \$12.00, F. O. B. Chicago or Ohio factory. Prompt shipments are being made at this time.

A. G. WOODMAN COMPANY, Grand Rapids, Michigan

LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

Established 1885

A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.



John Nebel & Son Supply Co., High Hill, Mo
Montgomery County

HONEY-JARS

No. 25 one-pound screw-cap honey-jars, one gross to a crate, \$4.75; two-dozen cases, \$5.25 gross. We have several styles of jars, cartons, and shipping-cases. Italian bees and queens. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

3 Garden Tools in 1 The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self-adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.
Barker Mfg. Co.
Box 117 David City, Nebr.

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

BEE SUPPLIES

Send your name for new 1916 catalog.

Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

ADVERTISING RATES

Based on 20,000 circulation guaranteed.

Display, per agate line, flat, 15 cts.

Quarter page, \$8.00.

Half page, \$15.00.

Full page, \$30.00.

Outside back cover page, 25 per cent additional.

Special and guaranteed positions, 25 per cent to 50 per cent additional.

Classified, per counted line, flat 25 cts.

(Discounts on classified advertising: 10 per cent on 6 continuous insertions; 15 per cent on 12 continuous insertions; 25 per cent on 24 continuous insertions.)

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

Copy subject to editorial approval.

SIZE AND MAKE-UP

Column width, 14½ ems (2¾ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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Wanted---Honey

Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

We Were KEPT BUSY Last

Month---- No Mistake about That

All during the month were only at the most three days behind in filling orders. Are now caught up and ready for orders for shipping-cases. If you will be in need of these better get your order in early.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Nominated by Acclamation

Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who ‘has been at it’ for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect. Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

SEPTEMBER 15, 1916

NO. 18

EDITORIAL

Honey versus Sugar Syrup for Winter Food

WHILE good ripened honey is probably superior for a winter food, is not our good friend Dr. Miller attaching too much importance to iron which is found in very minute quantities? If honey is superior to syrup it is probably due to inversion and to the protein contents—namely, pollen.

The Rosy Side of Beekeeping

Do not fail to read the article by Mr. Al-lard in this issue, and then remember that there is another side. This year, 1916, in the eastern states, has been one of the good years; but it is fair to say to the beginner that he cannot do as well every year as he did in 1916, but what one has done some years others can do under the same conditions.

Consumption of Winter Stores in Indoor and Outdoor Wintering

IN this issue, page 853, Mr. Shiber refers to a current belief that bees consume less honey in a good cellar than bees well housed outdoors. This is something more than a belief—it is a real fact. The question undetermined is whether the larger consumption of stores outdoors does not yield stronger colonies in the spring. If our subscribers have any evidence to offer we shall be pleased to get it.

Old Dobbin Giving Way to Gasoline

J. E. CRANE & SON are now using an automobile truck for their out-apiary work, and have turned their horse out to grass. No horse or team can compete with gasoline for outyard work. We have proved it to our own satisfaction. A team is too slow, and, besides, incurs the liability of stings

and a general spill. Since the recent reduction in the price of the Ford automobile, one can now have a half-ton truck for about \$350. A good team and wagon costs as much with only a fraction of the capacity for miles.

Rabbit Spacers versus Spacers on the Frames

MR. LOUIS H. SCHOLL, in this issue, page 844, has come to the same conclusion that we and all others have who have tried frame-spacing rabbits; namely, that they fall far short of real self-spacing frames like the Hoffman. We do not know of a case in this country where self-spacing rabbits have passed much beyond the experimental stage. Beginners with them are enthusiastic at first, but they soon discard them.

The Ohio Field Meeting at Medina.

ON Friday and Saturday, August 25 and 26, beekeepers of Ohio came trooping into Medina by auto, trolley car, and train until over a hundred and fifty had registered. Dr. Phillips and Mr. Dadant were unable to be present but several of the Ohio inspectors were here, as well as Mr. House and Mr. Clark from New York State, and there was no lack of good live speakers.

In our next issue we shall have some pictures as well as some notes of what was said and done.

Variation in Colonies of Bees; the Washboard Act

MR. DOOLITTLE in his regular department in this issue has an interesting article on this subject. It will pay to read it. Among other variations he speaks of one colony that he had that spent its time in scraping the entrance-board, washboard fashion.

We have seen this same performance dozens of times among our own bees after the main honey-flow was over. We have been asked time and time again what it meant or what the bees were doing, but have never been able to explain it. Does any one know?

Honey-crop Conditions and Prices

THERE is nothing new to report since our last issue, page 774. As soon as the crop begins to pour into the market we shall be able to get more definite information. Apparently many beekeepers are making the mistake of waiting too long. A little later, when every one begins to unload, there is danger that prices will sag. The market is probably as good now as it will be later in the season.

Old comb honey of last year is pretty well cleaned up; but some of it after it granulated sold at a sacrifice.

Our Cover Picture

THERE are many different schemes for locating a hive in an apiary to avoid long straight rows and yet to have a system making it easy to locate any hive in the yard by its position in any certain group. The apiary seen on our cover for this number shows a very unique plan used by R. A. Marrison, of Cataraqui, Ont., Can. Mr. Marrison, as the picture indicates, locates his hives in groups of twenty-seven. There are three rows forming the sides of a triangle, nine colonies in each row, all facing the center.

The yard is surrounded by two rows of trees, including apple, plum, cherry, pear, mulberry, black-walnut, and butternut. The picture was taken from the roof of the dwellinghouse, and shows only a part of the yard. In all, there were 204 colonies at the time the picture was taken.

Packing Hives in Newspapers for Winter

MR. BOND, in this issue, page 854, has had success in wintering bees in newspaper-wrapped hives with a winter case over all. Where one has hives screened by buildings and fence as shown in the picture of his apiary, the plan will give excellent results, but it will hardly be adequate where the hives are out in the open exposed to a strong wind-sweep.

We have come to believe that windbreaks for outside wintering are very important factors. If we had to choose between windbreaks and packing we would accept the

former; but both are very important. Mr. Bond's little apiary is surrounded on one side by a picket fence. Such a fence, more or less surrounded by buildings, affords an excellent windbreak.

Sugar-fed Comb Honey Not a Commercial Possibility

MR. WILLIAM COX, in last issue, page 805, goes on to show how sugar-fed comb honey is not possible, even if the business were legitimate. Years ago many attempts were made to produce the product. But in almost every case sugar feeding to fill out sections was given up. The nectar from the fields costs nothing; but when one has to pay for the sugar, and add its cost to that of the labor, and the cost of materials and equipment, he will find that he cannot compete with the other fellow who uses only the nectar of flowers that costs nothing.

While there is an art in feeding back or in feeding sugar syrup, the amount of loss under most conditions between the amount actually fed and the amount actually stored is considerable.

Proper Temperature to Heat Honey for Bottling

MR. SHIBER, in this issue, page 853, brings up this question. A temperature of 160 degrees F. will keep honey liquid—that is, from granulation, for a longer period than honey heated to 130 and then sealed. But the latter honey will have a little better flavor to the connoisseur and to the beekeeper who knows the quality of honey just as it comes from the combs. But the average consumer—yes, the great mass of them—will detect no difference between the honey heated to 160 and the other to 130. But if a bottle of honey shows granulation, even the slightest trace of it (and it will show up at 130), that same average consumer becomes suspicious and does not buy.

If the bottler could be sure his goods will be sold in six or even nine months, in a warm room the 130 temperature would be better than 160; but the average jobber and dealer puts his honey in cold storage. Such honey will granulate in less than a year. For this reason the bottler raises his honey to 160 before bottling.

Honey in the Trenches of Europe

WE have now information from a source which we are not now at liberty to reveal, that honey is being used in the European trenches along with sugar. Both of these

articles are energy-producers, and in many cases honey is cheaper than sugar. We have ascertained that the United States during the last fiscal year imported twice as much honey as it has done during any previous year.

When the war broke out in 1914 the prices on medium grades of honey began to sag until there was no demand. In the meantime sugar began to climb. The war lords of Europe, when it came to the matter of rations, soon discovered that honey, an energy-producer, was much cheaper than sugar (also an energy-producer), and consequently honey has been going into the trenches, and is going there still. Apparently only the medium grades are being used, because they furnish as much energy per pound as the finer and better-flavored table honeys that cost as much or more than sugar.

Swarming Dependent on the Strength of the Honey-flow

MR. J. A. HEBERLE, in this issue, page 869, says: "It is generally known that good honey years are poor swarm years," and *vice versa*. "The same colony which showed no swarming impulse in 1911 may in 1912 swarm excessively." The relation of swarming to the honey-flow may not be as generally recognized in this country as it is in Germany; but we believe that our correspondent is right when he says that good honey years are poor swarm years; or, rather, we would modify it this way: When the honey-flow is light and continuous, swarming is apt to be furious. When the flow is heavy—so heavy, indeed, that the queen is "honey-bound," swarming almost entirely ceases. This matter has been proven again and again, principally in the southern states. In Texas, as a general thing, swarming begins during the early part of the season when the flow is light and intermittent. As soon as the flow becomes heavy, swarming almost entirely ceases.

Years ago, in talking with the late W. Z. Hutchinson on this point we compared notes; and we finally concluded that the same characteristics that show up so strongly in Texas also show up in the northern states *when conditions are the same*. Swarming, therefore, is not a matter of locality but of conditions.

Making Honey Sales for Cash Directly at the Beeyard

MR. POWERS, in this issue, page 849, has struck upon a novel scheme of putting a

honey-sign directly over an automobile highway where hundreds of cars are passing daily. The scheme is as unique as it is effective. Automobile drivers have frequently noticed melons, peaches, and apples in baskets on sale along the side of the road. We know of a number of cases where fruit-growers have sold their entire crops to passing cars. All that is necessary is to display the fruit.

Our basswood yard is located on an automobile highway from Columbus to Cleveland. One of our young men, Mr. Arlie Pritchard, whose apiary is in sight of the road, has a honey-sign on display and honey ready to hand out. He has sold hundreds of pounds of honey to automobilists, who are willing to pay a good fair price, because they say this is real honey, and because they can see the bees and the hives.

In this year of a large honey crop beekeepers should utilize this means of selling honey right at home; and do not forget the value of the advertising effect. One driver will tell another; and the result will be that a regular trade will be established. The good housewife and the children can do all the work, and, besides, will have ready cash in the house, and plenty of it.

C. H. Bock, the Isle of Wight Expert and His Tentative Conclusions

IN our issue for July 15, page 583, and again in Aug. 15, page 711, we referred to Mr. C. H. Bock, of Newmarket, England, a representative from the Board of Agriculture of Great Britain, who was here to study bee paralysis and other diseases of adult bees in the United States. In this issue, page 851, we are glad to introduce him more formally to our readers. He is evidently a thoroughgoing beekeeper as well as one who is familiar with the Isle of Wight disease as found in Great Britain. If we understand it, he came to this country at his own expense in order that he might determine whether there is a direct relation between the adult bee diseases in Great Britain and the same disease or diseases that have been showing themselves in various parts of the United States for the last three or four years. In the engraving Mr. Bock is seen leaning over one of the hives; and if one could see him and shake hands with him, he would find him to be a quiet unassuming gentleman, a good beekeeper, a scientist, and one familiar with the diseases of bees. He left a pleasant impression on our American beekeepers, and goes back to his own country with our best wishes.

He was fairly sure of one thing; and that is, that the Isle of Wight disease is probably not the same as the bee paralysis of the United States. He also found here specimens of infected bees that may or may not be affected with the disease from the mother country.

Mr. Bocoek, careful investigator that he is, did not assume to draw any positive conclusions, but very modestly gave his tentative opinions about as follows:

1. The Isle of Wight disease and bee paralysis are probably not one and the same thing.

2. The disappearing disease found in this country may be the Isle of Wight disease.

3. It is doubtful whether the Isle of Wight disease would make any serious headway in the United States with our climatic conditions and American Italians.

4. He found *Apis nosema* in some bees in this country that appeared to be normal and also in some that were not normal.

5. *Apis nosema* may be the cause of Isle of Wight disease, but probably it works with some other organism before any serious symptoms show up.

6. A vigorous strain of Italians in Great Britain seems to be more immune than the native black bees.

7. American Italians may be partially immune to the English disease.

Introducing Queens Daubed with Honey

WHILE our correspondent Prof. Baldwin, in his department in this issue, page 845, does not claim originality for the method of introducing queens daubed in honey, we are of the opinion that he has brought out a modification that is original and important. His plan differs from the old one in that he uses a whole cupful of honey instead of just a mere daub. The queen is dipped in a cup of honey, when both are poured over the frames. The general spill and apparent ruin of the combs so diverts the attention of the bees that the queen is forgotten. After they have licked up the combs and the queen which, in the process, is made to acquire the odor of the colony, the new mother is accepted as a matter of course. In fact, she is only an incident. Merely daubing the queen with honey focuses the attention of the bees on the queen. Baldwin diverts them away from her. See the difference?

A year ago last spring we fed up a whole apiary by smearing Porto Rican honey over the combs of about fifty colonies. There

was probably a cupful or even two cupfuls poured on the frames. The result was magical. Every bee was engaged in the operation of putting things to rights. We found we could go back to those colonies and lift the cover without smoke, and give them another dose, because they were busy in cleaning up. Busy people do not ordinarily get into mischief. It is the idle, waiting for something to turn up, that make trouble, and so with bees.

If Prof. Baldwin has introduced an improvement it would be perfectly legitimate to call the method Baldwin's. While A. C. Miller did not introduce the method of introducing queens with smoke he did introduce a very valuable improvement, and hence the plan is called today the Miller smoke method.

Sweetened Spraying Solution

THERE has been conflicting testimony regarding the effects of spraying on bees. Where a spraying solution is sweetened with molasses, either to make it stay on the foliage better or to make it more inviting to the insects that it is supposed to kill, it seems to us that the danger to the bees would be very much greater. On the first page of *The Pennsylvania Farmer* for May 20 a recipe for rose-chafers is given as follows: 10 pounds of arsenate-of-lead paste, 8 quarts of molasses, and 50 gallons of water. The explanation is given that the insect is fond of sweets, and in eating the molasses gets the arsenate of lead.

If this solution were used in a wholesale manner we see no reason why bees in large numbers should not be poisoned. Since this insect does considerable damage on roses, grapes, and cherries, we suppose there is a possibility that such a solution or a similar one might be used a good deal.

If a sweetened solution is the only one that such insects will eat it would hardly do for the beekeeper to decry such practice, perhaps, and yet in a way this is a serious situation; for this liquid, whether it were sprayed on the blossoms or on the leaves, would be attractive to the bees at certain times of the year when they could get no nectar from the flowers. Two or three rains would wash it off, but considerable damage might be done meanwhile. In the clipping above referred to the statement is made that these insects are the most common on light sandy soil, but they are scattered pretty well, nevertheless. What is the beekeeper to do in a locality where a sweetened spraying solution is used on a large scale?

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



P. C. CHADWICK, please quit talking about a laying worker heading a colony, p. 653. Dozens of 'em, if there's one.

REMEMBER, Mr. Editor, how the bees were working like crazy when you and Dr. Phillips were here last year? At it again, exactly the same way, now.

H. H. KOLLOSTER, you say, p. 737, "I can use factory-made hives if I can afford to buy foundation." I can't afford *not* to buy foundation. I wonder really if you can.

R. F. HOLTERMANN doesn't want to "leave me a leg to stand on." He says, p. 682, if he were at the clipping business with me he'd never stop at clipping off one leg, but would take off both. What a vindictive cuss he is! Well, anyway, I'm glad to get off without having my head taken off too.

CHARLES E. DUSTMAN says, p. 723, that sealed worker combs are one inch thick, and drone $1\frac{1}{4}$. When I read that, I said to myself, "With the usual spacing, $1\frac{3}{8}$ inches, two combs of drone brood would have only $\frac{1}{8}$ inch between them, allowing no bee to pass." Then I went to the apiary and cut out sealed brood of both kinds. Sure enough, the Dustman measurements were all right. To be sure, it was old comb, and new would measure less. But bees often have old comb. Now, how do they manage with that $\frac{1}{8}$ -inch space?

J. L. BYER, you say, p. 651, you don't see how you could object to a man, owning property near you, keeping bees, but you do object to a specialist with a large apiary, and you seem to wish there might be a law against the last fellow. Now, if it's all right for your neighbor to have half a dozen colonies on his own property, why isn't it right for him to increase gradually to 100 and become a specialist? I have neighbors with half a dozen to 25 or more colonies, and there's no hard feelings between us, but I'd prefer to have it so that no one could have bees in a certain territory, of course paying for my privilege, just as, by paying for it, I can say that no neighbor can keep his cattle on a certain piece of ground, not even if that neighbor has only one cow.

A. I. ROOT says, p. 750: "Years ago I decided that a pound of honey in the comb, well ripened and sealed up, was worth a good deal more than a pound of sugar in preparing bees for winter—perhaps twice

as much. I should like to know what Dr. Miller thinks about the comparative cost of this manner of feeding."

With a fine article of extracted honey at 6 cents a pound (see p. 711), and sugar at present prices, one would hardly make a lot of money to feed sugar in place of honey. But when sugar is 5 cents a pound, and honey 10, and one feeds 20 pounds for winter, isn't there a clear gain of a dollar a colony by feeding sugar? But wait. When winter is over, those bees that have fed on honey, with its iron and other matters that are entirely lacking in sugar, will have a vigor at building up and storing, as compared with the sugar-fed bees, that may easily recoup several times over the extra dollar for the winter food. Yes, friend Root, you are quite conservative when you value such honey as you describe at double the worth of sugar for winter.

JOHN H. LOVELL asks some questions, p. 710, "Did Dr. Miller examine the pollen in the anthers of fresh flowers?" Never. "Has Dr. Miller examined the pollen in his hives under a microscope?" Never. But as to the color of white-clover pollen, I appeal from Lovell the botanist to Lovell the beekeeper. The former is a man for whom I have great respect, and whose statements I would not lightly question; the latter is a friend of mine with whom I feel on a level; and when I read that white-clover pollen was something else than brown, it never occurred to me that it was the botanist talking, but the beekeeper talking about what he saw in the comb or on the bees' legs. Honest Injun, I never thought of the powdery stuff on the flowers at all. In botanists' language, I'm ready to accept that the pollen of white clover is yellow, but in beekeepers' language it's brown; for in beekeepers' language, pollen is the stuff in the cells or on bees' legs. "Brown balls, evidently composed of white-clover pollen," says beekeeper Lovell, p. 728. One more question: "Is he certain that white-clover pollen is as abundant as he supposes?" Reasonably certain. When bees are bringing in honey from white clover by the ton, working almost exclusively on it, and that for weeks, and during that time bringing loads of brown pollen on their legs, it's reasonable to suppose that the mass of brown pollen accumulated in the combs is from white clover. Yes, friend Lovell, you're right, I've considered the matter chiefly from the hive end. That's because I'm a beekeeper, and not a botanist.

J. E. Crane

SIFTINGS

Middlebury, Vt.



From that interesting article on page 494, June 15, it looks as tho we shall have to revise our methods of bottling honey by using a lower temperature for a longer period. More and more, honey is coming to the front as a most valuable food.

"The beginner should understand there is a large amount of risk in trying to introduce a laying queen to a colony that has been queenless for a week or ten days," says the editor, page 518, July 1. Yet this is the method advised by queen-breeders fifty years ago.

The greenish yellow pollen from clover that Prof. Lovell speaks of, page 477, June 15, here appears to be a greenish brown; and, while not abundant in each flower, it proves to be very abundant in the aggregate, as I believe bees gather more of it than any other kind.

August 14 the Vermont beekeepers met in this town for a summer meeting. I believe it was the largest gathering we have ever had, owing in part to a large crop of honey in this immediate vicinity and the presence of C. P. Dadant, editor of the *American Bee Journal*.

It is decidedly interesting at this season to watch the growing fruit, and cut open imperfect ones and discover that the cause of the imperfect development of the fruit which, in almost every case, is the lack of the proper fertilization of the flowers, and, as a consequence, the lack of growth of seed and fruit.

The crop in our county will be abundant this year; but last week I was inspecting bees in the next county south and was surprised to learn that the crop there would be very light—not half that of last year. This week I met two beekeepers from the north part of the state, from two different counties, who say they have secured very little honey this year.

There is a fitness in using so much of the space of the Aug. 1st number to the marketing of honey. As Mr. C. P. Dadant remarked a day or two ago, the future of profitable beekeeping will depend on our ability to increase its consumption. I am glad to know the A. I. Root Co. are enter-

ing on a vigorous campaign of honey advertising—page 646, Aug. 1.

It seems that Massachusetts has recently passed a law prohibiting misstatements in advertising. It prohibits untruthful statements of values in excess of advertised prices; false declarations that the advertiser employs; misleading statements designed to induce the public to go into the establishment of the advertiser, and other intentionally deceptive advertising, etc. Let the good work go on.

Three or four weeks ago we began to wonder how we were to get our honey home from the outyards. We could not hire a truckman; farmers were busy with their haying; livery teams were expensive, and our own horse was getting tired out. We bought an International motor truck that has given us no end of pleasure. It solves the problem of transportation to outyards, and our horse has been turned out to pasture.

When I see an article by Allen Latham in *GLEANINGS* I always "sit up and take notice," and his discussion of European foul brood on page 479, June 15, is no exception. While I am not prepared to accept fully his theory as to the spread of the disease (he may be right) I am quite sure the disease spreads from nurse bees entering a neighboring hive. There may be more than one way in which it spreads. With me I have found a hive standing near another having the disease much more subject to it than those further away.

Mr. Latham assumes that the reason Italian bees are more immune to European foul brood is because they remove the diseased larvæ bodily. If this theory holds true, then we may believe that in removing the dead larvæ by first sucking the soft parts the blacks get germs into their stomachs, and so transmit the disease to other larvæ. Now, I have found Italian bees much more resistant to American foul brood than black bees. When I go thru a yard of bees for the first time where American foul brood has recently broken out, and find every colony of black bees in bad shape from the disease, and the Italian bees but slightly affected, and perhaps some of them showing no indication of disease, I have great respect for their ability to resist this form of disease, as well as European foul brood. Let us be thankful for the lemonade treatment.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Allen Latham's queen-rearing plan as given on page 592, July 15, is good, for I use it and know that it is excellent. If the cells are placed in the colony and allowed to be polished for a few hours before giving them the larvæ a goodly number may be accepted without the use of royal jelly if the grafting of the larvæ is done rapidly and the combs returned to the hive at the earliest possible moment.

* * *

On page 645, Aug. 1, the editor says: "Even as it was, we instructed the boys to burn all such combs." Now I scold and scold about burning things valuable about the apiary that can be otherwise cleansed, with the feeling that I surely will impress the idea, and then you come along and recommend the burning of combs! The word "burn" should have no part in the cleansing of bee supplies, and to my mind should be discouraged entirely.

* * *

SOME OF THE DIFFICULTIES IN CO-OPERATIVE SELLING.

The subject of co-operation in selling honey, in the Aug. 1st issue, was well handled; but there were too few details in many instances to give the desired information to the casual reader.

State Market Commissioner Harris Weinstock has under consideration the problem of organizing the beekeepers in California in the form of a state-wide marketing organization. Mr. Weinstock sent out 2200 letters of inquiry to beekeepers of the state some time ago, and the enthusiasm with which they were received may be best told by saying that only six per cent of them were answered, or about 120. This fact alone was sufficient to discourage any but the strongest in intent and purpose; so, inasmuch as it did not discourage Mr. Weinstock we must place him at the head of the column. He has recently issued another letter, I suppose to those who were interested enough to answer (this is my presumption, as I doubt if he would continue writing to those who showed no interest), asking for their judgment as to the advisability of calling a conference to discuss the subject of a state-wide marketing organization.

In my first answer to the commissioner I did not speak very encouragingly of the possibilities of organizing the beekeepers

into a successful organization for marketing purposes. My chief reason for so writing was the experience in that line that has now passed into history of organizations. But the efforts of Mr. Weinstock are so commendable that I feel he should be given all the support possible, for it may be that just ahead he may be able to show us a successful organizing plan.

That there is need of an organization is evident, and yet there are many reasons why it will be difficult. The article by J. Edgar Ross, page 655, Aug. 1, goes right into the heart of some of these reasons. He goes into history and points out the very thing that causes the downfall of the majority of beekeeping organizations. Then there are other reasons that make for failure. One of those is, say what we may, the buyers as a rule are following very closely the trend of the market, and are offering prices that many times allow them only a fair profit for dealing in this commodity; yet at times we know that, when the market is on the downward trend, the buyer gets crafty and the producer gets panicky, and the tendency is in favor of the buyer. At these periods an organization would be of far more value than at any other time, if the object of holding the producer from "dumping" could be worked out. But, as Mr. Ross says, "Co-operation requires the yielding of individual co-operators, and without the press of necessity it can never be a success." There is the situation in a nutshell. Last season when we were begging buyers to take our white honey at five to five and a half cents, it would have been much easier to form an organization than at the present time when honey has moved at a good figure and readily. Last season the buyers were accused of having a gentleman's agreement which may or may not have been true, while this year almost every one secured more for his honey than he thought possible early in the season, and the beemen do not care whether the buyers are working together or not. This goes to show that the producer has no real concern about organization when he is prosperous; but when he is not prosperous he is down in the "dumps" and is all concern. But for all the argument pro and con we are indebted to our State Market Commissioner for the interest he is taking in trying to persuade us to co-operate for our own good, and he should receive our most hearty support.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Co-operation and organization should be the slogan of the beekeeper. Never before in my own beekeeping experience have I seen a greater need for it than now.

Texas has had an excellent honey crop for 1916. There were some important beekeeping sections that did not fare as well as others. The north central and the northern parts of the state did not harvest the cotton honey until the fore part of August.

Texas honey prices have been anything but satisfactory this season. With an increased cost of production and low prices commercial beekeeping cannot last long; and not only the beekeeper, but all who are dependent upon him, must eventually suffer. Any effort in the direction of obtaining better prices for our product should be welcomed by not only the beekeepers themselves but by the supply dealers, foundation-makers, bee-journal publishers, manufacturers, merchants, and all others who appreciate the beekeeper's dealings.

It is a fact that Texas honey has been selling at a considerably lower price this year when compared with the advanced cost of all other products and commodities on the market. It is also passing strange that such a condition should exist when the demand for honey was hardly ever better, and when the honey prices in competitive markets of other states were from $1\frac{1}{2}$ to 2 cts. per pound higher. The lack of organized effort on the part of the beekeeper is to blame. There does not seem to have been an overproduction in the state; and on account of the higher prices in other states there has been no danger of competition. There should have been a better system of marketing.

NIX ON THE RABBIT-SPACERS.

Just recently I had an occasion to assist an extensive beekeeper in apiary work and in the honey-house with hives and supers equipped with metal frame-spacing rabbits. Plain frames are used, and these hang in the notched rabbits; altho I had never had any actual experience with them before, the idea that they are not very practical has always possessed me. Here this proved true, for, being used to the self-spacing Hoffman frames that can be "thrown" into

hive or super and become properly spaced, or that can be handled in pairs or trios, or even fours, it was quite difficult for me to become used to handling each frame individually. Neither could I spread frames apart for the easy removal of a comb or shove them from one side of the hives or supers to the other. There was not that stability of the frames in the filled hives and supers so essential for hauling them, especially when filled with tender comb honey, of which we produce so much. Besides the greater expense in addition to the above apparent drawbacks, this kind of equipment did not appeal to me as well as the simpler and (in my hands) more easily manipulated self-spacing frames.

FRENZIED SELLING.

Honey prices have been driven still lower by competitive dealers as well as by producers who were anxious to sell honey quickly. If the selling could be regulated so that the honey crops might find their way to market gradually, and thus prevent the apparently flooded markets, better prices would obtain. The main trouble is brought about by those who are over-anxious to sell and by those who are after handling a great volume of the honey business so as to enable them to make their per cent of profit irrespective of what the producer will get. A lower price of one to two cents per pound amounts to a difference of something like \$50,000 to the beekeepers of Texas. Is this worth taking care of? It is time efforts were being made for a thoro organization.

CLEAN VS. DISORDERLY YARDS.

The condition an apiary is kept in makes a material difference in the manner the bees in such yard will be cared for. My experience has been that the bees in the yards located in the more attractive places, or even those kept in clean and orderly condition, if not so ideally located, have given us the better returns. In the more neglected apiaries the bees were continually more or less neglected also, while much more careful attention was given them in the case of the former. It affords one not only greater pleasure to work in an apiary in a more favorable location, with everything in the apiary in "apple-pie order;" but the work is done with greater enthusiasm and interest in what needs to be done for the better welfare of the bees and best results for their owner. It affects the owner as well as the employees in the same manner.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



FLORIDA A LAND OF SURPRISES.

No two years are alike in Florida, except that they have 365 days. I refer to honey-flows. Mention has already been made in these columns to the very late orange-flow. Even into mid-June honey was stored in supers from the orange-blossoms. Orange usually ends in early April. Our man at Glenwood yard has just extracted (Aug. 6) a fair crop of late orange and palmetto honey, "blended by the bees." It is fairly light in color, good flavor and body, tho not as clear as pure orange.

By the way, it always seems to me about any blend of two clear honeys is never quite as light-colored as either one in its purity, and I should be glad to know of others' experiences in this line.

Now comes our second surprise. Cabbage palmetto is usually done blooming by July 20. This year it yielded even up to August 10 or 15, slowly but steadily, honey of an excellent quality. Such a late yield from this source is quite phenomenal. Never before have I known of so late a flow from this, the tree-palmetto. The blossoms are on huge racemes six feet in length, at times of a delicate cream tint, as fragrant as they are beautiful.

The cabbage palmetto referred to seldom yields oftener than once in three years, tho it blooms regularly and profusely. Excess of heat or rain is alike fatal to nectar secretion.

The late yield from this source is very gratifying to beemen within range of the trees, for the honey-outlook at the opening of the year was very unpromising. At the beginning of the season Dame Nature said, "Nothing for you this time," and then flung wide her hands and showered out an unexpected gift.

SWARMING IN AUGUST.

In our home yard there are signs of swarming in August. It is the late and lingering flow from cabbage palmetto that is producing the condition. Swarming in August is almost a thing unknown in Florida, generally speaking. This year there was practically no swarming from the orange-honey flow. These two facts may give a clue to the causes and effects in the matter of swarming. Here is the summary. Bees do most of their swarming on the first main flow; after that swarms are but desultory and scattering, even if late flows do appear. The swarming instinct (whatever that may be) seems satisfied. This year no swarming from orange at the usual season (March);

then late orange and a lingering flow from palmetto with resulting tendency to swarming. But the later flows never seem to produce so wild and intense a desire to swarm as does the first early and profuse honey-flow of the year.

ANTIGONON LEPTOPUS.

The common names are pink-vine, Mexican vine, and Spanish vine. It is a vigorous, tho non-hardy, vine, with broad pendant leaves and showy clusters of delicate pink blossoms. It is cultivated, not wild, and grows so easily, and is so widely cultivated, that bees in many localities are helped materially in brood-rearing by it. From early summer to late fall it blossoms, is always covered with flowers, and the flowers are always alive with bees. Probably no surplus is obtained from it, tho one of our correspondents from Nampa reports that his bees do seem to get even a surplus from it. However, this latter fact is not yet proven. Let all beemen note it well, and encourage the planting. Once started, it requires no further attention, and is withal a beautiful and attractive ornament to any arbor, trellis, or veranda.

POUR HONEY IN WITH THE QUEEN.

Dr. Miller has asked me to describe in detail the method of queen-introduction by the daubing or smearing plan. Well, Dr. Miller, as I said in my former note in GLEANINGS, neither is the idea new in the bee-world, nor is this plan original with myself. I can add very little to what I stated before. The plan, in essence, consists in dipping the queen to be introduced into half a teacupful of honey and pouring her, honey and all, down over and between the frames of the colony to which she is being introduced. The merit of the plan—nay, the secret of success, if secret there be—seems to lie in the completeness with which the queen is daubed with the honey, and the amount of the honey poured in with her. That is to say, she must be thoroly covered with honey.

The amount of honey poured in with her and after her seems also to aid—it may even be essential. Then close the hive-top and see that the entrance is narrowed to a point where robbers can be kept out—according to the strength of the colony.

Since my former report I have lost no occasion or opportunity to test out the plan further; but I should like to hear reports from others, and would advise experimenting at first with some queens, not too valuable at first.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



VARIATION IN COLONIES OF BEES.

"Is it a fact that colonies of bees differ in their individual characteristics? I supposed that they were as near alike as two peas."

With domestic animals we find much variation. No two dogs or horses are exactly alike. There is a difference in size, disposition, temperament, etc., and why should there not be with colonies of bees? Any one who has had even a little experience with bees will readily admit that some colonies are more vicious than others. Some colonies will allow you to stand directly in line of their flight for an hour at a time, patiently going around you to get to and from their hive, while with others two minutes will be sufficient for making you stand out of the way.

The hives of some colonies can be opened with no fear from stings. Others resent all such interference. I remember one such colony. It was with the greatest difficulty that the hive could be opened, even in a good honey-flow, and this trait remained permanently until a new queen was given.

Then I had one colony that persisted in not attaching their combs to the sides of the sections, even in a very profuse yield of nectar, while other colonies with fewer bees and during a light yield of nectar, would occupy every available bit of space, even filling the corners so that there would be no passageways there.

Some colonies will gather pollen to an extent sufficient to crowd out the honey and brood, (apparently leaving the more laborious employment of gathering nectar, thus filling their brood-combs and crowding the mother-bee for room.) The work of one colony was very noticeable this year along this line.

Before the advent of comb foundation the difference in comb-building was very marked. Some colonies would build their combs as straight as a board, and all within the frames, while others would build them crooked or across the frames, even where starters were used.

The business thrift of some colonies is very marked. With a small number of bees they make the most of their conditions; and at the end of the season they will have much more to show than will colonies that were more populous in early spring. Some will work extra early in the morning; others late in the evening.

The swarming impulse is very strong in

some colonies—so much so that, unless you let them have their way, or do something to satisfy them, they will sulk and do little or nothing. Other colonies will work with a vim without any swarming, nor is any manipulation from the beekeeper for its prevention needed. Such colonies will roll up a large surplus.

Some colonies will gather much more propolis than others, daubing the inside of their hive with it until it runs down the sides. They will even leave the legitimate pursuit of nectar-gathering to daub the insides of their sections and half-finished combs with a liquid coat of bee-glue.

I had a hive this season in which numerous bees seemed to spend much of their time standing with their heads down over the front of the hive, moving up and down with their mandibles rubbing against the hive as if trying to scrape something offensive off on the upward movement. No other colony in the apiary showed any sign of doing such a thing.

A few years ago I had one colony the bees of which seemed possessed with the idea that it was necessary to tear down all the foundation placed in the sections before they would do any work in them, while at the same time the rest of the apiary would have their sections nearly full of drawn-out comb and ready for the honey-flow. When the flow comes on, then this colony would go to work building comb, only to have its supers fairly commenced when the flow of nectar ceased.

Most persons will admit that different varieties of bees are quite different; but if these same persons are close observers they will find that there is nearly as much difference between colonies of the same variety as there is between different varieties. The observing apiarist understands that all of these various traits of character are represented in the queen of the colony, and that the character of the colony depends upon the queen and the drone with which she is mated. Aside from the characteristics of her offspring, the queen has traits peculiar to herself; as her size, her willingness to remain in sight on the comb and continue her egg-laying when the comb is removed from the hive, and, more important than all others, her ability to lay eggs. Therefore the most successful apiarist will have an eye to having his hives stocked with the *best* queens that have mated with the *best* drones.

GENERAL CORRESPONDENCE

THE ROSY POSSIBILITIES OF BEEKEEPING

Wake up, Mr. Sapp, and Look Around a Bit

BY J. A. ALLARD

The *National Stockman and Farmer* for July 29, 1916, contained an article on bees written by Mr. C. H. Sapp, of Ohio. I was much surprised at some of the statements made in this article, among which was the following: "Spurred on by the stories of great (often fabulous) wealth which has been reported to come to the apiarian, many people have invested in bees and the accompanying necessary supplies and tools. While some of these have obtained a supply of the coveted sweets, it is safe to say that a majority of them would have obtained a larger supply if they had spent their money for honey," etc.

The author of this article claims to have had a life-long experience with bees. If this is the case, he either lives in a very poor location or is a poor beekeeper. Our location in central Pennsylvania is no better than thousands of others. Yet last year I had one colony which gathered more than a hundred pounds of section honey after the 15th of August.

We have people in this section who give their bees scarcely any attention, and yet harvest at least half that much in good years. It is certain that, if the little workers are given any kind of care, they will pay for their keeping and something more.

A few years ago the *Beekeepers' Review* published a series of articles by prominent beekeepers in which they described their best years, or the years in which they made the most from their bees. For the benefit of those who may not have read these articles, I am going to quote a few of the notable successes.

The first of whom I shall tell is the "Grand Old Man of Beedom," Dr. C. C. Miller, of Marengo, Ill. I quote from Dr. Miller's own story, "In the year 1908, from 129 colonies, spring count, I took 19,480 sections, or 151 sections per colony, increasing to 160 colonies."

And all the work connected with harvesting this surprising crop was done by Dr. Miller himself and his sister-in-law, Miss Emma Wilson. If the doctor sold this crop for only 12 cts. per section he received \$2300 for it.

The next I shall mention is Dr. O. M. Blanton, of Greenville, Miss., who, in 1908,

secured 22,000 pounds of honey from 215 colonies, and increased to 290 colonies. Altho the doctor was in his eighties at that time, he did all the work with the help of one negro. Such a record is enough to put some of us younger fellows to shame.

In 1910 Mr. E. F. Atwater, of Meridian, Idaho, had a crop of 71,000 pounds of honey from 900 colonies, spring count; increased to over 1150 colonies, besides selling a carload of bees during that spring. This crop was extracted honey; and if Mr. Atwater received but 6 cts. per pound for it, he received \$4260.

I quote the following from the Feb., 1911, *Review*, from an article written by Mr. Frank Coverdale, of Delmar, Iowa: "I find that my best season was 1903—350 colonies stored 32,000 pounds of comb honey, which sold at 12½ cts., bringing in \$4000."

Mr. Coverdale says that in 1908 and 1910 his crop almost equaled this.

In 1910 Mr. H. C. Ahlers, of West Bend, Wis., made \$4000 from successful migratory beekeeping, getting a crop in the South, and shipping the bees north in time to catch the late summer and fall flow.

In 1908 Mr. R. D. Bradshaw, of Payette, Idaho, produced 43,200 sections of comb honey from one yard of 500 colonies, and sold the crop for \$4679.

Mr. J. E. Crane, of Middlebury, Vt., produced 42,000 pounds (about ¾ comb honey) from 650 colonies. No doubt this crop netted Mr. Crane between \$4000 and \$5000. This was, I believe, in 1906, and I think Mr. Crane has had even larger crops since that time.

In 1909 Mr. H. G. Sibbald, of Claude, Ontario, with the help of one young man, attended to 350 colonies, harvesting a crop of over 50,000 pounds which netted him \$5000.

In an article in the *Review* for September, 1911, Mr. E. D. Townsend, of Remus, Mich., says that his best year was 1909, when, with 600 colonies, he produced 36,000 pounds of comb and extracted honey, none of which brought less than 8 cts. per pound, and increased to 700 colonies.

Mr. M. A. Gill, of Longmont, Col., in 1907, with a little less than 1000 colonies,

produced \$7640 worth of comb honey, which was sold to C. H. W. Weber & Son, of Cincinnati, Ohio, at above price, f. o. b. Longmont.

The year previous Mr. Gill harvested a crop which netted him \$6400 from 700 colonies.

In the *Review* for January, 1912, Mr. Oliver Foster, of Boulder, Col., said that 1900 was his best year, when, with 587 colonies, spring count, he produced 79,000 pounds of honey, and in addition almost \$200 worth of wax from cappings.

Mr. M. H. Mendleson, of Ventura, Cal., at one time produced 101 tons of honey from 1870 colonies, which, if sold for only 6 cts. per pound, brought more than \$12,000.

Last, but not least, I shall mention a woman beekeeper, Mrs. S. W. Frey, of Sand Lake, Mich., whose net profits, after deducting all costs of production, were \$1000 per year for 1907, 1908, and 1909.

The beekeepers mentioned cover a wide range of territory, which proves that successful beekeeping is not confined to any one location.

Those mentioned are only a very small portion of the big beekeepers of this country. They are the only ones for whom I have seen figures. It may be that they have since had much larger crops. There are dozens of others who have been equally

successful—some who have been much more successful—but these are the only ones of whom I happen to have statistics.

Brother beekeeper, is it not time that you become alive to the possibilities of beekeeping on a large scale, as a profession rather than a hobby? What others have done you can do, if you only think so. Methods and tools are constantly improving. You can be a third more efficient than the beekeeper of fifteen or twenty years ago.

If a man in his eighties can and does produce a carload of honey yearly; if a woman can make a net profit of a thousand dollars yearly, and you, Mr. Beekeeper, can hardly supply your own table, I pity you. Better get into some hobby for which you are fitted, or improve your ways.

Oh! take a lesson from the bee,

And dig in without waiting.

Time flies, your crop will take wing while

Your woes you are relating.

Osceola Mills, Pa.

[Dr. Miller, at least, has made a better record than the one given. In 1913 he averaged 266 sections of comb honey per colony. Of course, these are some of the record yields, and are not to be obtained every year. But any such sweeping statement as that by Mr. Sapp, in the *National Stockman and Farmer*, is very far from the truth.—Ed.]

EVOLUTION OF THE HONEYBEE

BY ALLEN LATHAM

That is an interesting letter on page 293, April 1, from the Reverend Mr. Goodacre. His logic is good till he reaches number 5. Queens do transmit that which they themselves do not possess. It is not a question of "can they," for they actually do. Mr. Goodacre's argument can be turned back upon itself. He says the first swarm of bees must have been created outright. Very well, let us assume such for the sake of argument. When thus created was the queen of that original swarm given the power to transmit to her offspring that which she never herself experienced? If the answer is negative, then that first colony must perforce die out, for all progeny of queen and drones must be queens and drones. If the answer is in the positive, then wherein lies the strength of Mr. Goodacre's argument? Can God not give the power to a queen-bee to transmit to worker bees strange functions not possessed by herself in more than one way? Can he not give it thru the

mazes of evolution as well as by direct creation?

It is not well to destroy without rebuilding. Allow me, Mr. Editor, to suggest the possible evolution of the honeybee. We cannot, of course, go back in time and discover the secret. We must discover it thru analogy. Fortunately we have living today bees of various sorts, also wasps and hornets. As the astronomer, unable to read the history of our own sun in the sun itself, seeks its history in a study of the heavenly bodies in view of his telescope, bodies which are suns in various degrees of development, so we can find in the habits of other bees what our honeybees may have gone thru in past ages.

There is the solitary bee which reproduces only the true males and females. There is the social wasp which is but little advanced. Then come the bumblebees. These produce during part of the warm season various types of worker bees, but in fall

the full-fledged males and females. The mated females live thru the winter and start the new colonies the next spring. They must do all the work at first; but soon they have six or eight workers to help, and then the "old lady" *stays at home*. As the season advances the workers grow smaller and smaller. Unlike the honeybee, the bumblebee has not reached a definite type of worker bee. Hornets and certain wasps have a life-history much like that of the bumblebee.

Let us now make a jump away back in time. One of the earliest of all recorded forms of life on the earth is that of the bee. It came down to us imbedded in amber, preserved for our edification. We know that the bee has had a tremendous lapse of time in which to develop the wonderful traits that never cease to arouse our interest. There was plenty of time to allow for the honeybee to exist thru centuries without the worker-bee. The queens were the workers—possibly living solitary at first, later becoming social. Then there sprang up a jealousy, let us suppose, among those equal females. One was sufficient for the colony; why such waste of economy? The next step then was the undeveloped female, brought into existence simply because there was no call for so many egg-layers, but there was a call for

laborers. Wonderful and difficult to explain, but it must have happened. We have them with us, and they must have come about in some way.

At first queens alone lived thru the season of dearth, as the queen bumblebee does today. Then workers acquired that power. Possibly they did not have to acquire it, since they could easily retain it, having been once in their life-history regular queens. It is not difficult to surmise how the honeybee struggled up to its present perfected system of life. It is wonderful, and almost inexplicable, but not at all difficult to picture for one who is willing to let his reason have a little freer rein.

Now for one last statement. The queen does not possess the power to transmit to her offspring that which she *never* possessed. She once performed all the functions of the worker. Doubtless there was a time when the queen possessed a longer tongue, a stronger sting, wax-producing organs, etc. In the long lapse of time these functions have become abortive in her, but not lost, for she gives them to her worker offspring. And the hand of God is here just as strongly as tho the whole wonderful bee-colony was brought into instant existence instead of having to "climb" from a lowly start to the *dizzy heights* it now holds.

Norwichtown, Ct.

A HONEY-FOR-SALE BANNER CLEAR ACROSS THE ROAD

BY S. POWERS

I am sending a picture of a sign which I put up as soon as I secure surplus, and take down as soon as sold out. Some sea-

sons this sign moves as much as 1200 sections, and often the demand is for much more than I produce.



Can't help seeing a sign like this.

This year our comb honey from our early flow was almost a failure on account of bad weather. Four to five days frequently went by when bees flew only enough to secure water; but when it was possible for them to fly they found it.

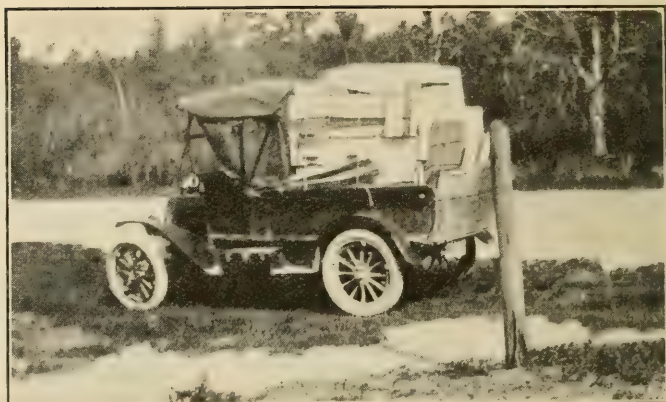
This sign, which, of course, is home-made, cost 46 cts., hangs across the main road from Philadelphia to Beach Haven, N. J., and to several popular fishing-points. We often have 600 cars pass us in one day Saturday or Sunday.

My extracting-yard

in the swamp location has done well. I have used Danzenbaker frames for brood-rearing, but am now changing by degrees to Hoffman, but am going to raise the center pin in the Danzenbaker and use them for extracting rather than destroy them.

I have a converted "Ford" for pleasure or business. An out-yard of 48 colonies is 16 miles away. My home yard contains 29 colonies. I am building up another out-yard, which at present contains 9 colonies. I run strong colonies for comb honey in $4 \times 5 \times 1\frac{3}{8}$ sections, and the weaker ones for extracted.

At the time the picture was taken I had



"And the little old Ford rambled right along."

a load consisting of 32 Danzenbaker bodies, 52 bottoms, 48 tops, some tin, some canvas, 12 supers, and some 40 pieces $\frac{1}{2} \times 4 \times 24$ -inch strips of lumber. "And the little old Ford rambled right along."

Wading River, N. J.

THE MYTH OF DANIEL McFADYEN WINTERING BEES UP TOWARD THE NORTH POLE IN CANADA

SUMMARY BY MORLEY PETTIT

The story comes from about 150 miles from the arctic salt water in James Bay, an extension of Hudson Bay, in a great plain where bloom abounds for about two months. The honey-flow was said to be great while it lasted, getting 200 lbs. per colony. The bees were wintered in a cave buried in snow.

About ten years previously Daniel McFadyen was crossed in love, went north into the forest with gun, knife, and dog, fell among Indians, learned their language, married the daughter of the chief, and at time of writing had five children, healthy and plump, and as nimble as otters.

The method of wintering was as follows: The first cold night they uncovered the hives so they would get perfectly cold thru, then kept them in a cool place in the shade with covers on loose so as to keep them dry. As soon as a good fall of snow came, a certain cave was packed with lots of snow, then dry bark and the hives on the bark, with bark above the hives, again covering over with dry snow. The secret of success was to keep them frozen and dry all winter, covering over with hemlock brush to keep out the sun. The bees were said to hibernate, eating nothing all winter, but coming out strong and healthy in the spring.

He and his Indian friends kept about

250 colonies of bees, and sent the honey down the waterways toward the settled districts, selling to Indians on the way down, exchanging for furs which were taken down to be sold at the trading-posts.

During these ten years he had produced about 6000 lbs. of beeswax, which he had stored in a wigwam. D. A. Jones, then editor of the *Canadian Bee Journal*, started negotiations with him to purchase the wax, which he was willing to bring down to North Bay and sell at about 10 cts. per lb. Of course, the wax never materialized; but a very ingenious story was sent to account for its non-appearance. The story was as follows:

They had agreed to supply another tribe with bees to start an apiary. Chief Ottomee and thirty of his strong men came for the bees, with ponies. They selected sixty good half-story hives and fixed them up secure with ventilation holes covered with grass. They paid for these in furs and deer-skins. Ottomee and his men started home quite contented with their bees, satisfied with the bargain. They had about seventy-five miles to go, and it would take them about four days to get home. The third day about noon the bees had gnawed the grass covering or netting over the holes and began to come out. They attacked the ponies, and there

was a stampede. The ponies ran wild, and the Indians had to run into a swamp. Some of them got home ahead of the men, which made the Indians at home think that there had been war, and fifty started out with ponies, armed, to avenge their people. They met the others next day in a sore condition, both in body and mind. They thought the white man called Dan was linked with the spirits of rattlesnakes and wildcats, which had possessed the ponies. They were going to kill him, but he had wisely taken to the woods. They then started setting fire to wigwams, and among the others fired the wigwam containing the 6000 lbs. of beeswax. The wax got to burning, and produced such a hot flame, and burned such a length of time, that they were sure they had finally got rid of the spirit of the white man, and went off contented. This was McFadyen's ingenious story to prevent investigation of his wonderful yarn of "beekeeping in the North."

In the *Canadian Bee Journal* for 1888, Vol. IV., page 632, J. H. Martin, who was

afterward so well known to readers of *GLEANINGS* as "Rambler," tells a story to match Mr. McFadyen's story.

He says, "We find that the Dog Rib Indians living near the Great Bear Lake annually consign a greater portion of their tribe to the bottom of the lake in hermetically sealed cases, where they remain with animation suspended for several months, and upon the approach of warm weather they are fished out and restored by the animate portion of their tribe. In corroboration of the above there are Hindoo jugglers who will allow themselves to be buried several days with seemingly no injury."

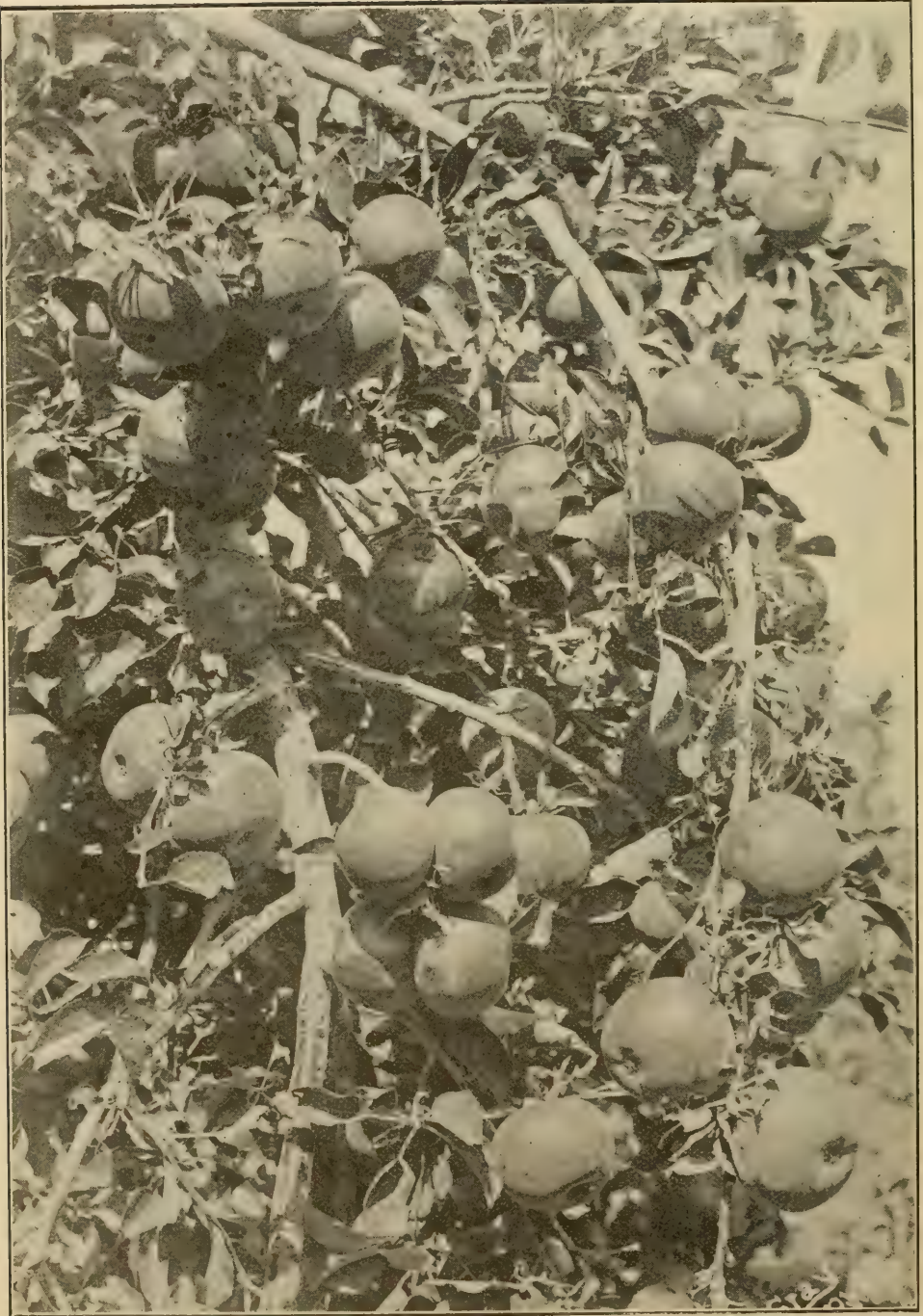
"It would certainly be an economical method for both bees and beekeepers to get thru the winter with suspended animation. In fact, they will be obliged to if we have many more seasons like the past."

In a postscript Mr. Martin avers that there is as much truth in this story as in Daniel McFadyen's, and wants it accepted in the same sense.

Guelph, Ont.



Mr. C. Hanson Boccock, the expert on bee diseases sent to this country by the British Government to investigate the new disappearing disease found in this country. See editorial, page 839.



Winesap apple-tree. This is in the orchard shown on the cover for GLEANINGS for April 15, 1916. Sales of apples in one year were over \$8000 in value, the trees covering some 25 acres in extent.

THE DANGER-POINT IN HEATING HONEY

BY GEORGE SHIBER

On page 98, Feb. 1, Mr. Doolittle says that granulated clover and basswood honey will be as clear as when first extracted when heated to no more than 145 degrees. The latest edition of the A B C that I possess, 1903, on pages 130 and 132, gives 160 degrees as the highest point that granulated honey can be heated. Of course that was orthodox some years ago; but I believe that later editions have lowered the figure.

My experience makes me feel that all of the above temperatures should be lowered, and that 130 degrees is as high as we can go if we wish to preserve a fancy article that has granulated. My experience has been entirely with basswood and clover honeys. Mr. Doolittle's "time," tho, is about what I allow for seven one-gallon cans.

I have a square galvanized boiler three or four inches higher than the one-gallon cans. A wooden false bottom on which the cans rest, about 1½ inches from the bottom of the boiler, protects the honey in the bottom of the cans. The boiler is filled with water, and slowly heated to 130 degrees—no higher—and left to remain at this point for three hours. The honey will be practically as clear and fine-flavored as when first extracted. But it will lack just the least little bit in color and flavor. To tell the truth, I have not found a perfect plan for liquefying candied honey. Of course, this slight difference would not be detected, as a rule, except by those who are experts in honey taste; but if we allow the temperature to reach 145 or 160 degrees the color and flavor will deteriorate to a very marked degree.

The directions on my labels say that the water should be no hotter than one can bear the hand in. This is not very definite; but one can feel sure that the honey will not be burnt. However, I have seen my own clover honey, originally fine and light-colored, made like black molasses by a customer who thought he knew just how to do it. I do not know of any way that clover honey can be put up for the trade that will be granulation proof, but I am studying the question. Heating it to 130 degrees and sealing while hot, or at once, is the best way I know of, and works very well; but there is an occasional exception where such honey will granulate.

THE SAVING OF STORES IN A CELLAR.

On page 114, Feb. 1, Mr. J. L. Byer figures on 35 pounds net as the safe amount

of stores for winter in Ontario, and he estimates the cost at 6 cts. a pound, which would be \$2.10. Looking at it from every angle it seems to be expensive wintering. Western New York has some pretty cold weather, as a rule; yet I would feel safe in wintering outdoors with 25 pounds net, costing, according to the above, \$1.50. This is expensive enough.

A few years ago I changed from cellar to outdoor wintering, and wintered fairly well. I found out one thing, however, and that was that it took more stores to carry them thru to settled weather in the spring; and while I have never weighed stores to see how much had been consumed, I think inside wintering can be done at a saving of one-third in stores up to the time the colonies are carried out in the spring. I feel pretty sure that 12 to 15 pounds will carry strong colonies thru the four to four and a half months of confinement; and those same bees, if wintered packed outdoors, would consume, I believe, four or five pounds more. This would make a saving of twenty-five or thirty cents, and that would pay for carrying them in and out. But I would rather have colonies which had consumed only 12 pounds during confinement than those which had used 18 pounds during the same time. I should consider that, the more they had eaten, the weaker they would be.

WHEN IS THE GREATEST LOSS IN WINTERING?

My experience says after about the middle of February, whether wintered outdoors or in the cellar. The wintering problem is very easy up to that date; but after that time is when the losses occur. Some years I have had the greatest loss in April; and judging from reports I see others have had the same experience. The strong colony that consumes the least and stays quiet usually makes the best showing. These are some of the reasons why I have dispensed with packing-cases and have almost all the bees in the cellar according to the way I used to winter, and the method I have found the most satisfactory.

On page 116, Feb. 1, the editor says, "If you can shake more than three pounds on the average from your colonies in early spring, you are going some." Well, I should say so; and he might add to the above that one could take 12 framers too. Why, there is many and many a colony of but two pounds of bees the last of April (or early spring) that will be up to the mark when

the crop is harvested if they have plenty of stores.

The most valuable bees are those that have not been more or less worn out by

dysentery brought on by poor stores or excessive eating to maintain the required heat.

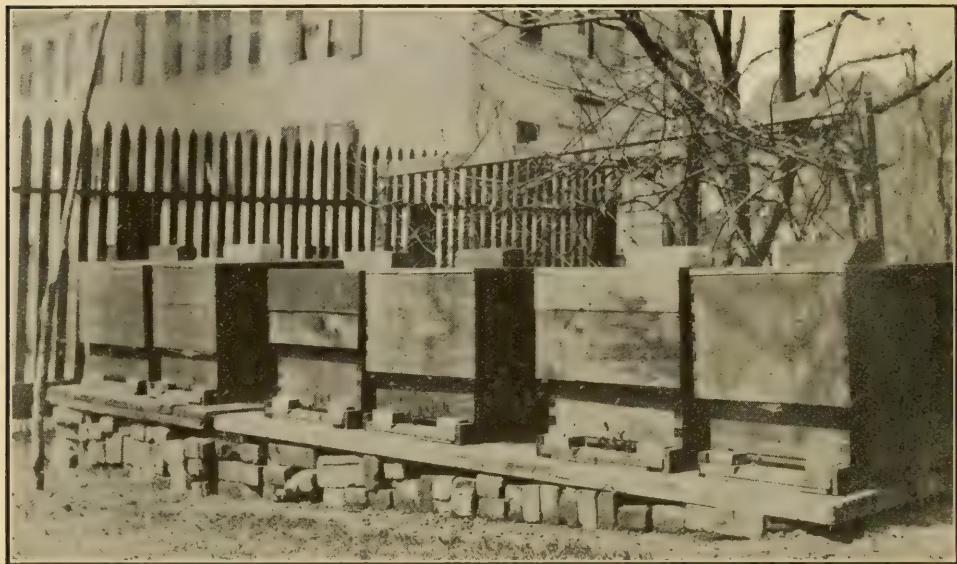
Randolph, N. Y.

NEWSPAPERS AND TELESCOPING COVERS FOR WINTER PROTECTION

BY F. R. S. BOND

The photograph shows the bees in my back yard. They are facing the south, and are just behind a hen-house which is nearly

super-covered; then a super filled full of folded newspapers. This was covered with another super-cover, and the five thicknesses



F. R. S. Bond's backlot apiary in winter quarters, Worcester, Mass.

20 feet long. This was taken in the spring, showing the hives just as they wintered. The paper wrapping under the covers can be seen on some. Over the body was the

of wrapping-paper were folded over the whole, and covered with the telescope cover pressed on. Every colony came out strong.

Worcester, Mass., June 6.

IN THE HIVES BUT NOT IN THE CANS

BY F. GREINER

When I read the editorial, Aug. 1, in which special mention is made of the McIntyre plan of obtaining *all* the honey from cappings, I expected to find something more satisfying than I did. The heading of the article is misleading to begin with. It is a misnomer, for you don't obtain the honey at all except that which drains from said cappings in the uncapping-box. I am here reminded of the sailor boy who dropped the captain's golden drinking-cup overboard by accident; then, in his consternation, came to the captain and asked him

if he considered a thing lost when he knew where it was, to which the unsuspecting captain replied: "You little dunce you, how can anything be lost when one knows where it is?" The cunning little fellow then said, "Well, then, the captain's drinking-cup is not lost, tho it is on the bottom of the sea."

It is a good deal so with the honey the bees extract from the cappings by the McIntyre plan. It is in the hive but not in the sixty-pound can.

It seems to me the McIntyre plan has no advantage over our long-practiced plan of

placing the cappings in the solar after they have had a day or two of time to drain in the uncapping-box. The McIntyre plan has the disadvantage of making an extra very bulky implement necessary. We have already more such than we want. The old plan makes no such demand. The solar separates the honey from the cappings without cost, and gives us the wax in a solid nice cake besides. It is true the honey obtained by the solar melting process is not as nice as the honey that drains from the cappings; but we get it. It answers well for feeding. The comb-honey producer can use it to advantage for feeding back to have unfinished sections finished up. I never have any too much of such honey for my purpose. The honey obtained at the close

of the season from unsealed combs, together with this exceptionally heavy honey from the solar wax-extractor, is usually just about sufficient to have the 30 or 40 cases of unfinished honey, which I usually have, finished up by feeding it back to six or eight well-working colonies at the close of the season.

Some years ago we used to wash the honey out of the drained cappings and make vinegar from the sweetened water, either in combination with cider or pure; but honey vinegar does not find favor with the general public. Even the best cider vinegar finds a slow sale, so we have discarded that practice and put the cappings thru the solar as stated.

Naples, N. Y., Aug. 26.

BEE-NOTES FROM HOLLAND

Our Wintering Problem

BY J. H. J. HAMELBERG

As has already been pointed out, our skeps require but little preparation for winter. Whatever may be said against these old-fashioned structures, they surely are ideal winter-homes. I have wintered blacks in them without finding a single dead bee on the bottom-board in early spring. I really consider it a pity that a modern hive, without losing the advantages of easy handling and accurate fitting of its fixtures, cannot be made of straw bands, twisted by hand and held together by stripped bark or cane, as is done with skeps. Of course, one could make a board skeleton and have it covered with straw all around; but it would not be the same. Neither would a hive of compressed straw answer as well. It seems that this platting of the straw by hand is just the thing for the right kind of ventilation and the proper escape of moisture; but this handwork at the same time prevents obtaining the accuracy in dimensions needed for the fixtures of a modern hive.

For those who keep their bees in hives, the wintering problem offers far more difficulties. Our winters can be very cold and can last long, altho in late years we have had only mild winters. But my experience is that these mild winters, with their lasting rains and fogs and sleet, and the thermometer still not rising much above 40 degrees, are far more to be dreaded than a spell of freezing weather. The comparatively mild temperature causes the bees to move about too much, to consume a great amount of stores, and to commence brood-rearing too early. Besides, my experience is that it is

much easier to protect bees against cold than against moisture.

All beekeepers have their own fancies and hobbies, and act up to them, and this applies especially to our systems of wintering. Some prefer wide entrances, others think they can hardly make them small enough. One believes in leaving plenty of room between the bottom-board and the bottom-bars of the brood-frames; others consider a passage a trifle over a bee-space quite sufficient, etc. It would take up too much room to describe the different ways in which bees are wintered in this country, and so I will give only my own, not because I consider it the best, but because I am most familiar with it.

To combat the danger of moisture gathering in the hive I always take particular care to use plenty of absorbing material in and over my hives, which, as is general in this country, are wintered on their summer stands. For absorbing material I have never found anything superior to what is called peat-dust, being the refuse which accumulates in the drying and transportation of peat. It can be bought for \$3.00 to \$4.00 per ton, packed in compressed bales of about 200 lbs. each. On either side of the brood-nest I put a follower the width of an ordinary brood-frame, filled with this material. However, I do not nail up the sides of these followers with thin boards, but tack stout yellow cotton over them, as any moisture is thus more readily absorbed by the peat-dust inside; and these followers, not being thicker than an ordinary

brood-frame, they allow room for eight frames of stores which I need in my Danzenbaker hives. Above the inner cover I put a super, filled with the same material to about an inch from the top, and then put the cover over all. When the bees have not had the time to seal the inner cover of the brood-chamber with propolis (which may happen on account of feeding them up too late in the season as a result of a late delivery of sugar by our beekeepers' association), I paste strips of paper over the cracks between the inner cover and the brood-chamber. I consider an entrance of $2\frac{1}{2}$ by $\frac{1}{4}$ inch quite sufficient, and close the summer entrances up accordingly.

The inner covers I use in wintering all have a hole in the center to fit the mouth of a common fruit-jar, which enables me, if

necessary, to feed the bees in early spring without disturbing them, and with no fear of robbers. Before putting the peat-dust in the supers, this hole is covered, of course; but I think it essential to use a very thin board for this purpose, and I prefer to have it fit not too nicely, so that the moisture, rising up from the center, may be absorbed readily by the peat-dust above.

With this system of wintering I lost a colony only once. This colony had been fed in autumn with syrup made of unrefined cane sugar. I found the top-bars of the brood-frame of this colony smeared with excrement, and I noticed a sour smell coming out of the hive, which convinced me that the food and not my system had been at fault.

Soest, Holland.

WINTER PROTECTION WITHOUT LOOSE PACKING

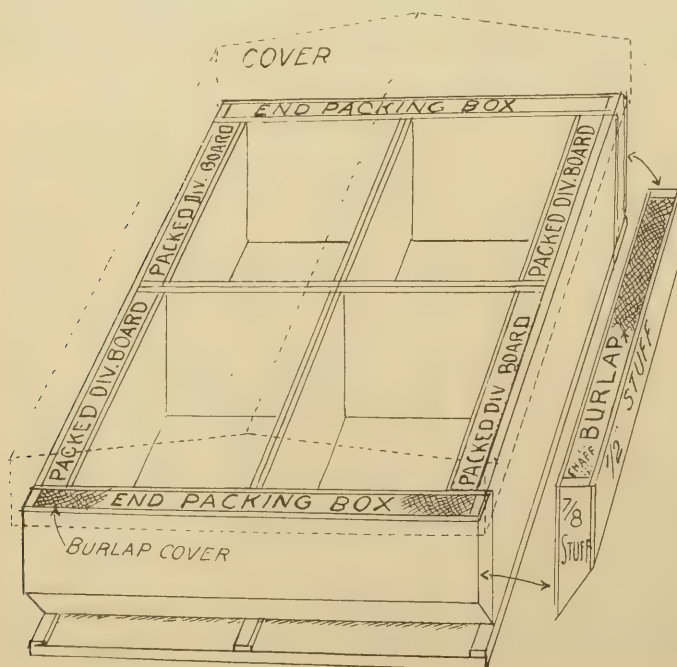
BY H. H. SMITH

I have tried nearly all methods of packing bees for outdoor wintering. While I have had success with most of them if the colonies were in good condition, with young bees and good stores, I have found that nearly all the methods have some serious drawback. The single-colony double-walled hive is expensive, and heavy to handle. Properly made cases to hold four colonies cost nearly as much as the four hives, and

I never could get used to the muss of loose packing material in the fall and spring. Besides, there is not one part of a packing-case which can be used for any other purpose during the season after bees are taken from the cases.

The drawing shows the way I wintered a part of my yard last year. I make a frame of 2x4 scantling, large enough to hold four colonies, 2 colonies facing east and 2 west. Two pieces of 2x4 scantling, 6 inches apart, run across the center of the frame to support the back ends of bottom-boards of each pair of hives. This arrangement allows the hives to be spread apart during summer.

At feeding time in the fall two outside combs are taken from each colony, and a chaff-packed follower or division-board is put on in their place. These division-boards are made of a frame of $\frac{1}{2}$ -inch pine 2 inches wide and $\frac{1}{2}$ inch shorter than the hive is long inside. The sides are made of wall-board, manufactured by the concern that makes paroid



roofing. Chaff or sawdust will do to fill the space between the sides. To make the division-board fit snug when put into the hive, a piece of burlap is made into a roll about the size of a lead-pencil, and tacked to the two ends and bottom.

At packing time the four hives are placed close together, and a box holding four inches of packing is fastened at each end of the group as shown in the drawing. Over all is placed a large cover holding 6 inches of packing, the packing held in place by burlap tacked 2 inches from the lower

edge of the cover. This arrangement has all the advantages of the large packing-case, and none of the muss caused by loose packing. The end packing-boxes can be set up in groups of twelve, still filled with the packing material, and covered during the summer with one of the large winter covers. The chaff-packed division-boards are very useful during the summer for protecting weak colonies. With this wintering arrangement no extra bottom is needed, as with the large-case loose-packing plan.

Palermo, Ont.

WINTER PROTECTION FOR TWO CENTS A COLONY

BY DANIEL DANIELSON

For more than thirteen years I have lived in Colorado and have tried nearly all plans of wintering. I have tried the cellar but that is not satisfactory here, as it is too warm. I have left the colonies outdoors unprotected, and in some winters they do fairly well; but in other winters there are severe losses. Therefore I concluded to try outdoor protection.

For the last three years I have put my hives together in the fall in long straight rows, running north and south, alternating the entrances east and west so there is an entrance only at every other hive on the same side of the row.

I always winter my colonies in two-story hives, the bees usually staying in the upper story during the winter.

I cover the whole row with felt or tar paper, putting one roll of paper on each side and folding both upper edges over the top of the inner cover, and then put the regular

cover above as shown in the picture, page 362, May 1. I nail lath on each side below the cover to hold the paper in position. The material for this method of protection costs about two cents per colony, and the labor is a very small item. For Colorado I find this protection is cheap and practical. When the sun shines on the paper in the winter it warms it up even on a cold day.

EASY WAY OF BUILDING UP THE WEAK ONES.

By removing the outer cover I can fold back the paper and examine any colony that I wish by removing the inner cover, afterward putting the paper back in position as before. I leave the protection on until May, when all the colonies are scattered around, so as not to be in regular rows. At the time I make this change, if there are any colonies that are weak I leave them in the row temporarily, and they catch the stray bees and thereby become as strong as the rest.

Brush, Colo.

COMMERCIAL QUEEN-REARING IN SOUTHERN CALIFORNIA

BY HOMER MATHEWSON

The subject of this sketch, Mr. Henry Perkins, was born in Hamilton, Ontario. When but a small boy his parents emigrated to San Diego Co., Cal., where the father is still engaged in beekeeping.

Under the direction of his father he became a successful beekeeper; and when the possibilities of Imperial Valley became known he emigrated to Heber, where he established the first large apiary in the county. This venture was crowned with success. The following year he shipped the first car of honey from the valley. He continued to maintain a large apiary here for some years. Disposing of his holdings here he went to Ventura Co., Cal. Here

he spent a year with Mr. Mendleson, who counts his colonies by the hundreds. After much prospecting he finally located at Artesia, Cal., and commenced the rearing of queens upon a commercial scale. His apiary is located on the banks of the San Gabriel River, about a mile from the town. For this industry the location is ideal. The yard shown in the illustration covers about four acres. The surrounding country produces enough honey for building colonies nearly the whole season, but not enough for profitable yards, hence their absence, making it possible to get pure matings.

At present Mr. Perkins has 300 twin mating-boxes, and 125 single ones, making



725 mating nuclei in the queen rearing yard of Henry Perkins, near Artesia, Cal.

725 units on stands convenient for manipulation; 75 colonies are used for cell-building.

Mr. Perkins uses practically the same method as other breeders. The cells are transferred to the upper story of strong queenless or superseding colonies to make sure of being well fed. The cell-building colonies are fed while cell-building is in progress. After ten days the cells are given to the nuclei for mating. It seems that, the smaller the nuclei, the more sure the mating. Each nucleus will average seven

queens per season, and oftentimes two per month. An allowance of 20 per cent is made for loss in mating and poor queens. The nuclei are fed once a week with a very heavy syrup.

The feeder used by Mr. Perkins is one of the best I ever saw; but it is not adapted to cold climates, inasmuch as it is on the outside of the hive. It is of his own invention, and it comprises several features. Each feeder is double, serving one or two colonies at the same time. Being on the outside of the hive, and so constructed that no robbing

can take place, it is possible to feed at any time of the day.

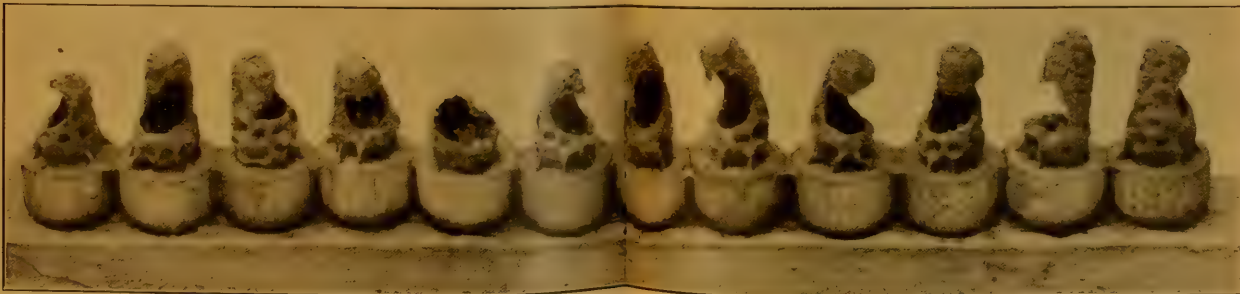
This industry represents the investment of several thousand dollars. The capacity in the height of the season is above 800 queens per month. One of the interesting features is his system of signs indicating the condition of a nucleus, whether queen-right, virgin, or queenless. In filling the cages for shipment he has a method of getting the queen to run into his half-closed hand where she is held prisoner while the cage is supplied with bees, and then the

queen is run in of her own accord, never being pinched or handled in any way.

One of the little "big things" which time and patience have perfected is the idea of using pure wax for cells, using nothing but the best new white comb.

Mr. Perkins has finally exterminated all black bees in his range, hunting them out of trees, stumps, buildings, and, in one case, from under a water-tank. In some cases the queen and drones were sifted out and the bees used for nuclei.

Lexington, Ky.



After the battle. By accident, a batch of cells was left a day or so too long in a cell-building colony. The first virgin that hatched, true to her nature, waged an unfair war upon her helpless sisters still in their cradles. Every cell was ruthlessly torn open, and the little white queen inside killed. A virgin queen will not stand for competition.—See next page.

AS GLIMPSED THRU THE CAMERA

BY H. H. ROOT

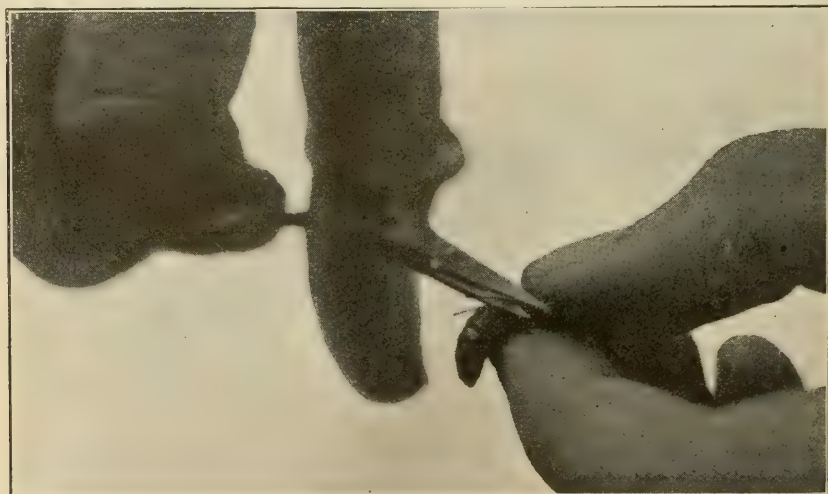
The pathway of a queen-breeder is not always strewn with roses; there are unexpected thorns. The weatherman plays unkind pranks, and takes delight in making the most experienced prophet so badly mistaken that he will prophesy never again. Just when the breeder gets everything going fine, sudden cool weather will come on followed by cold rains, and all plans have to be set aside and new ones made. One week the breeder may have a big surplus of queens; then in just a few days there won't be a queen in sight, nor immediate prospect of getting any. The unhappy victim of circumstances has little to do but look out on the cold dreary world and look in on the letters from his angry customers

tore great holes in the sides of the other cells and mutilated the helpless inmates, the bees meanwhile organizing a "wrecking-crew" and clearing up after her as best they could.

The engraving shows one of the bars of cells, every cell a complete wreck. Whether the young queen tore all of the side of the cell away herself in her frantic efforts to kill her rival, or whether the bees removed a part of the wax in cleaning out the remains, I do not know.

CLIPPING QUEENS.

To the beginner this process is one that is cordially dreaded. It is not difficult, however—the easiest thing in the world, in fact.



The easiest way to clip a queen.

demanding that their orders be filled or their money returned.

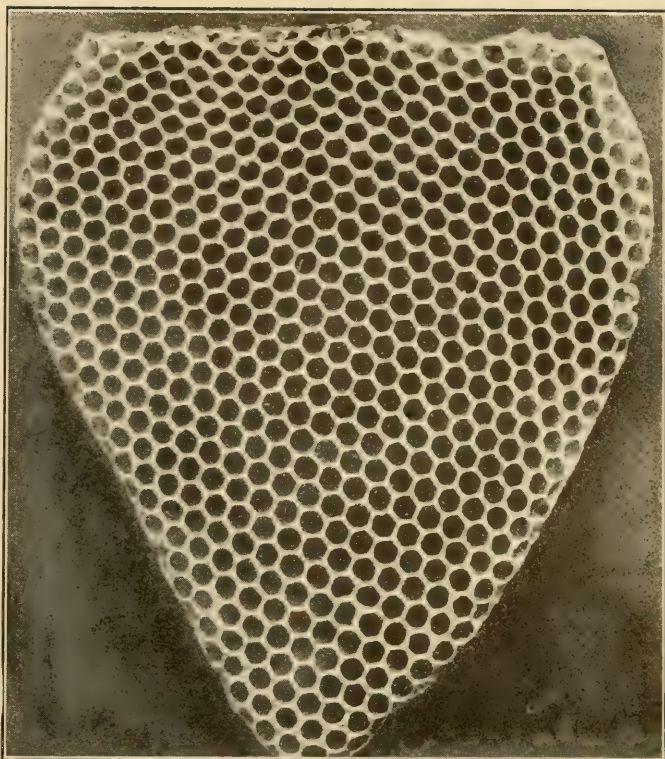
But it is not of the weather that I intended to write. The queen-breeder has to be a careful man, and withal a good book-keeper. If there is any mistake in his figures that mistake is likely to be a costly one—so costly that the breeder groans to himself that "life is just one blame thing after another, anyway."

This summer, for once in his experience, Mr. Pritchard happened to make a mistake of one day in his figures. Two bars of cells were left a day too long; and the first virgin out, true to her instinct, immediately slaughtered all her unborn sisters. With the one passionate idea of reigning supreme or not reigning at all she

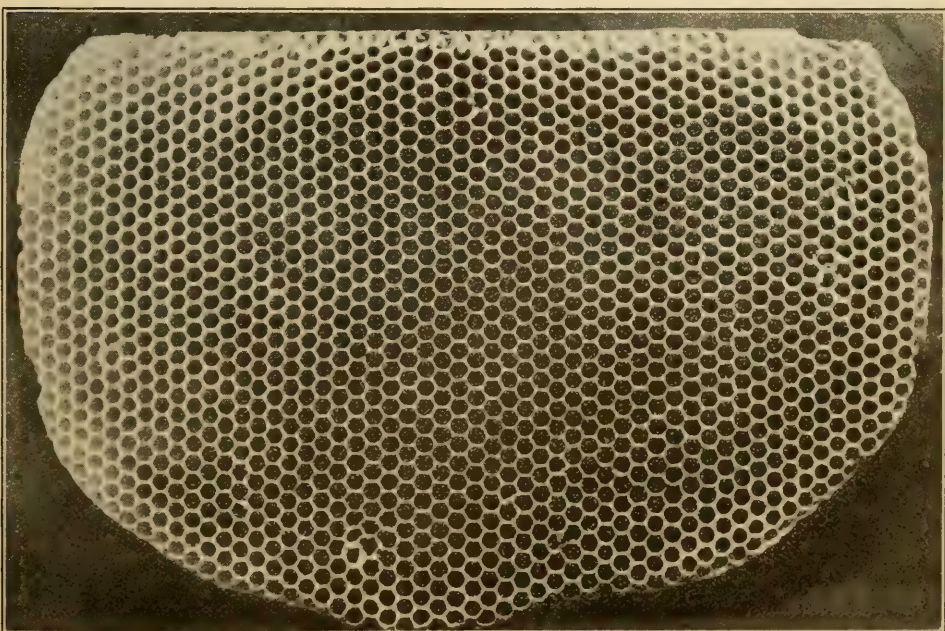
It is well to practice on a few drones first, catching them by the wings between the thumb and forefinger of the right hand. Transfer the bee to the thumb and forefinger of the left hand, placing the under side of the thorax on the ball of the finger with the head toward the other fingers, the thumb meanwhile pressed very lightly on the thorax just enough to keep the bee from getting away. Particularly in case of a queen, always try to catch the wings on both sides in order that she may be prevented from buzzing around and getting badly frightened. When she is in position between the thumb and finger her legs will grasp the end of the finger and the wings will nearly always stick straight out. There is then no danger of clipping a leg, and the

wings are clipped in much less time than it takes to tell about it.

If you are timid about picking up the queen from the comb, take a piece of soft iron wire about No. 16 and bend a small loop or eye in each end. Bend the piece of wire around, forming a letter U, so that the two eyes are not over three-quarters of an inch apart. Tie a rubber band across, and by holding the wire in the left hand it is not at all difficult to imprison the queen as she walks about on the comb, by setting the rubber band down on her back. In this position she may be clipped with the seissors in the right hand while thus held on the comb; or, after being caught, she may be picked up by the thumb and finger of



A sample of natural comb with the rows of cells running vertically, and two parallel cell walls horizontal.



Another sample just like it.

the right hand, transferred to the left hand, and clipped as described above. I believe, however, that the queen is less frightened if calmly picked up from the comb and quickly transferred to the left hand without any rubber band or any other device.

WHICH WAY DO THE BEES BUILD COMBS?

Every now and then some one tries to start a discussion by arguing that the bees when building natural comb always build it in such a way that two parallel cell walls are vertical so that the rows of cells are horizontal. There is abundant proof to show that bees often build comb the other

way. Most of the pieces of natural comb that I have seen are built with the rows of cells running horizontally; but here are two pieces of comb that I found this summer, both of them with two parallel walls horizontal so that the rows of cells are vertical. I doubt whether it makes very much difference to the bees. It is claimed that the comb is less likely to sag if not built this way. This I am ready to believe, altho I have never seen any positive proof.

If it happens to be more convenient when cutting up foundation to cut it in such a way that the rows run vertically is there any objection to so doing?

SOME ADVANTAGES OF A BEE-EXCLUDING FRAME

BY MARK W. MOE

A frame covered with wire netting, which might be called a bee-excluder, will be found convenient for several purposes. The outside dimensions should be the same as those of the hive it is to be used upon, with a bee-space on the upper side, the same as a queen-excluder, bee-escape, or any other article used on a hive. It should have *two* layers of wire netting, because, if only one layer is used with supporting-strips, it would allow too much space under the frames in the hive-body or super above it. If used without supporting-strips the wire netting would be likely to sag enough in some cases for bees to pass under division-boards resting upon it. If no bee-space is provided on top, there is danger of killing bees, and sometimes queens, under the frames.

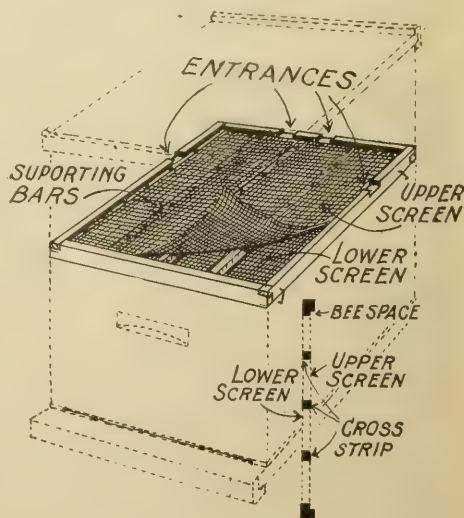
I much prefer to use this bee-excluder instead of tacking wire netting on the bottom of a brood-chamber, as advised in the A B C and X Y Z of Bee Culture, for mating queens in nuclei in an upper story, and I also prefer having the outside entrances made in the bee-excluder rather than in the brood-chamber above it.

Among the uses which may be named for the bee-excluder are:

1. To close the hive in moving bees.
2. To separate a weak colony from a strong colony below, for the purpose of building up the weak colony, when, for any reason, it is feared that either queen might be lost if a queen-excluder were used.
3. For the purpose of introducing a queen with absolute safety, by releasing her on frames of hatching brood over a colony. The bee-excluder is placed between.
4. For providing a place to put brood,

with part of the bees adhering, in carrying out any of the shaken-swarm methods.

5. For mating queens in an upper story. Simply fasten it to an empty brood-chamber, with hive staples; provide bee-tight division-boards, and canvas or enamel-cloth to lay over the frames. When thru mating queens, remove the bee-excluder and your brood-chambers are ready for any other use, with no unsightly holes in them.



Also, if a beekeeper happens to be using closed-end frames he can still use an upper story for queen-mating nuclei just the same, and without cutting away any part of the ends of his frames.

6. By providing one or two holes for bee-escapes, to be covered with metal slides or pieces of sections when not in use, the bee-

excluders can be quickly transformed into ventilated bee-escape boards.

In one of my screens I have four outside entrances. This is for the ten-frame hive. I would have only three for the eight-frame hive, one on either side, and two at the back. My idea is, to place a small alighting-board on the back, long enough to reach under both entrances, with an upright partition coming just between them, with the

opposite sides painted different colors. If I find that this does not work satisfactorily I can give one middle compartment a queen-cell, and, about five days later, one to the other middle compartment, keeping a zinc queen-excluder over the entrance to the latter until the first queen is mated, then transfer the zinc queen-excluder to the entrance of the mated queen.

Bristol, Col.

WHY I NEVER LOST A COLONY IN WINTER

BY J. F. KIGHT

The clover harvest closed here about Aug. 1; and while the bloom was more abundant than has been known in this state for a long time the flow of nectar was not more than fair.

Sweet clover came in a little earlier than usual, and seemed to have quite a lot of nectar. Today, August 17, it seems to be about all gone to seed.

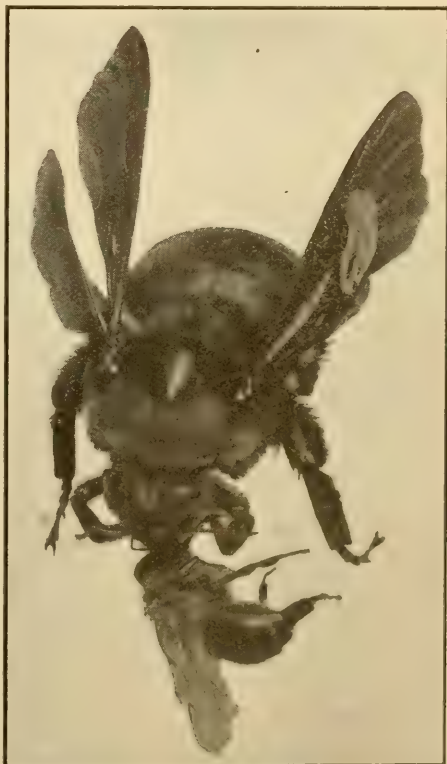
White aster will be the next on the bill of fare, and there seems to be an abundance of it. It remains to be seen whether or not it produces a good flow of nectar. I am extracting rather closely from the outside frames of the brood-chamber with the hope that these combs will be filled with the aster honey. For outdoor wintering I have no fears from it whatever.

I wish to tell the beginner how I manage to bring my bees thru our Indiana winters with no loss of colonies. In the first place my hives are all ten-frame. I see that each colony has not less than 35 lbs. of honey the 15th of October. I then go thru them and place the lighter combs with no brood on the outside, thereby moving the honey nearer the center. After this is done I place the queen-excluder back in its place, put on the shallow super empty, and fill it with some kind of absorbent of moisture. First I place a very thin piece of muslin over the queen-excluder; then fill in with dry leaves or anything dry that will take up the moisture.

About Nov. 15 I wrap each hive with a thin tar paper to keep the wind from entering the hive only in front. The entrance is now contracted to the regular winter entrance, viz., $\frac{3}{8}$ by 5 inches. I hear some say, "Why keep the queen-excluder on?" To keep the bees from having to go around the end of the frames when it becomes necessary to change to another honey supply, when all they have to do is to crawl between the top-bars of the frame and the queen-excluder, which is a space of $\frac{1}{2}$ inch.

I have never lost a colony of bees from cold weather wintered in this way. If the apiarist lives in Indiana climate he should not remove this covering until settled warm weather, which is from April 20 to May 10. Don't hurry; more harm is done by this mistake than one would surmise.

Indianapolis, Ind.



Bumblebee making it hot for a honeybee. Some of the other bees took part in the fight, but too late. Both bees were dead when found.

IS IT A NEW OR OLD TROUBLE?

BY W. C. MOLLETT

Last winter I began to notice that there were more dead bees at the entrances of some of the hives than I had ever seen before. These were mostly very strong colonies. I did not think there was a disease, but rather thought the condition might be due to the weather, and I expected they would be all right when the weather became better. The winter was very changeable—very warm for a few days, and then suddenly cold, and there was considerable rain and damp cloudy weather.

I thought also it might be due to the kind of honey the bees had gathered, or some little matter which would soon right itself. I began to notice closer, and I perceived after a cold night there would be a great many apparently dead bees at the entrance of the hive; but when the sun came out a great many of them would begin to crawl around, and try to get back into the hive. I noticed also that the bees were carrying out many bees that were not dead, but seemed to be affected in some way. When I opened the hive a considerable number of bees would begin to crawl over the tops of the frames in a slow manner, as if they were just about to die. These would usually be of a very dark color as if the fuzz had all been worn

off them, and they usually seemed to be smaller—considerably more so than they should be. When any of them were carried out or brushed off the frames they would crawl around for a while and then fall over on their backs and tremble, and keep their legs moving for some time and then die.

These conditions kept on till spring came, and the colonies were so weakened that they could not build up enough to gather any honey to notice. Some of the bees seemed to get well when the weather was warm—at least the dead bees did not show up so much; but some of the colonies kept on in the same way all summer, and are still dying just as they did in the winter.

I first thought it was spring dwindling; but this disappears early in the summer. I am under considerable uneasiness lest it may keep up and finally affect all the colonies, which would completely ruin the prospect, for the time at least. It seems to affect only the adult bees, and does not have any odor of any account.

Stonecoal, W. Va.

[This is probably a case of bee paralysis. Usually in such cases a change of queen will affect a cure.—Ed.]



Straw skeps made large enough to cover an ordinary hive and super, making the scene artistically old-fashioned, and providing considerable protection as well. From C. GALLRELL, Newburyport, Mass.

IS A LAYING-WORKER COLONY WORTH SAVING?

BY E. S. MILES

There has been a good deal written on the subject of laying workers. On page 879, Nov. 1, 1915, Dr. Miller gives a good description of the indications that they are present in a colony. It might be added, however, that the unsealed larvæ from laying workers will not be regular and even in size as from a normal queen. Sometimes a defective queen will have scattering and uneven-sized larvæ, somewhat similar. An experienced apiarist will also nearly always detect an unnatural action of a colony with laying workers, altho this can hardly be described so a novice would understand. One more thing, noticeable in many cases, I think, is several eggs in a cell of any drone-cells in the brood-nest.

"The cure?" Doctor Miller says, "The best cure is to break up the colony." I cannot agree with our good friend, unquestioned authority tho he be on bee matters in general. I have found that a laying-worker colony will accept a ripe cell in most cases, if found soon after this abnormal condition begins. If not found soon, and the colony is weak and the bees all old, they are of no value to another colony, and quite liable to be killed rather than be accepted in uniting. My experience has been that workers take to laying only when the season is so that the bees are anxious to breed, and no queen is present, nor brood from which to rear one. At such a time normal stocks are strong with plenty of brood, and the addition of a few old bees, even if one succeeds in uniting, is of no practical value, and, unless one has more colonies than desired, the following process is recommended to get rid of the laying workers and at the same time build the colony up.

Go to any colony strong enough to spare one or more frames of brood, and select

combs that are well filled with sealed brood—hatching brood if possible—putting in their place the combs of laying-worker brood, after having brushed all the bees from them. Select, in this way, and give to the laying-worker colony as many combs of normal brood, a good share of it sealed, and ready to emerge, as they had of the abnormal brood from the laying workers. From two to four frames should do; and let it contain also some eggs and young larvæ. If the laying workers have been neglected until they have considerable sealed brood, take a sharp uncapping-knife and shave the heads from it before putting it into the normal colonies, and they will promptly throw it out and use the combs aright.

The laying-worker colony treated this way any time during the working season, when a living or more is being gathered, will usually rear a fair queen; but the best way would be to have a ripe cell from good stock to give them in from three days to a week after giving them the normal brood. It would be well, too, if giving a ripe cell, to destroy any cells built on the brood. I am not up on the philosophy of this treatment, but suppose that the removal of the abnormal brood, and giving a good supply of normal brood perhaps leads the bees to neglect the laying workers; and plenty of young bees being on hand by the time the larvæ from the eggs given are of proper age for queen-rearing brings the colony to about the condition of a colony whose queen has been suddenly removed; hence they will build cells and accept cells ready to hatch. I have had this experience on quite a few colonies with laying workers. Let others try it and report whether it is successful as a general rule.

Dunlap, Iowa.

TIDBITS

BY ARTHUR C. MILLER

What is the homing instinct of the bee? Does a bee find its home by appearances? In the language of an ancient investigator, "Can a bee remember a hole in the air?" Search me if you wish, but I carry not the evidence. However, on September 2, 1915, bees flew from a nucleus for a short time one morning; then the hive was closed and removed. At night about 150 bees were clustered on the concrete walk near where the hive had stood. Each noon thereafter

a few bees were to be seen hovering near the place. At nightfall, September 16, on the same spot 126 bees were gathered. What is a bee's home, anyway? And, say, do you suppose they had their own hive odor? I might ask some more awkward questions, but I guess these will suffice now.

* * *

Ever watch crows circling about a tree where an owl was roosting? Ever watch king-birds darting down at a crow or other

enemy? Saw a half-dozen bees acting thus over a clump of grass. Couldn't hear any "cawing" nor any scolding chatter; so, being sure they were neither crows nor king-birds, I investigated. Discovered that all the bees were not in the air. One was tail up under the palm of my hand as I put it down. Also discovered a clipped queen crawling rapidly about. Guess she was tired of housekeeping or else was a suffragette. Belonged in a baby nucleus about six feet away. She had filled things with eggs, and gone forth for a larger world to rule over or for some other near reason. No, the bees had not swarmed out. She had just ambled forth on her own account. She was returned to her hive, and a week later was found in another nucleus ten feet away and around a corner of a building. She had destroyed a fine queen-cell and gone to housekeeping again. Fickle jade! Are you good at guessing? Go ahead.

There are two trees which do not make good neighbors to a beeyard—"balm of Gilead" poplars and pines. Too much and too sticky propolis. Recently I went from a yard close to the seashore and far from trees to one among pines. I was very much stuck on the hives of the latter, so was everything else that got next to their insides. My! but wasn't that propolis soft and sticky that hot August day? Ever notice how it runs down combs and accumulates along the bottom edge? Bees are not always directly to blame for the thick gummed-up bottoms of combs. Don't blame everything on them. Sometimes you do not give them enough entrance. Why do you persist in ignoring Dr. Miller's good advice?

"Hello! Are you the bee inspector? Say, sorry to have 'phoned you so late (woke me from my sound beauty sleep), but what does foul brood smell like?"

"It has three kinds of smells—that is, there are three kinds of foul brood with three different smells—one smell for each kind. One smell is real rotten; the next is almost as rotten; and the third is only sour; and this is not foul brood, only pickled. Some folks don't agree as to how rotten the smell should be to be really truly foul, and the descriptions of the strength of the smell vary all the way from that of a bad cigar to that of an egg which explodes when you shake it close to your ear. You remember that, of course. How does yours smell?"

"Pretty much like sour swill. The yard is full of the smell, and it's just pouring out

of every hive. Had I better burn them right up?"

"My friend, that is the odor of new gold-enrod honey. You just let that smell keep pouring out. Congratulate yourself that things are as they are. At the present rate the bees will not only pack things solid for winter, but give a surplus as well. No, the honey will not smell like that when it is ripe. Good night."

I have that lesson by heart now, for about two or three times a day or night I get the question. And here is one for you. How do you suppose the bees can gather such smelling stuff and keep it down, even for a time?

DIFFERENT RESULTS FROM APIARIES CLOSE TOGETHER.

Item—sixty colonies of hybrid bees on a gently sloping hillside—a Rhode Island hill if you please, where the highest mountain is only about eight hundred feet. Twenty of said colonies were moved half a mile, as the crow flies, southeast, over the crest of that hill which was exactly one hundred feet above the first apiary. Forty feet below the crest of the hill, on the side opposite the first apiary, the twenty colonies were placed. That happened in the spring of 1915. The forty colonies stored not a pound of white nor even light honey, or leastwise all they got was submerged in dark bitter honey-dew from scrub oak. The twenty-colony yard put up a big crop of the very best light honey and not a drop of honey-dew to be found in it. And they put up more pounds per colony than the other yard. Does memory serve me right, that some one or two or three or more have said that apiaries should be at least three miles apart?

Another item: Two apiaries of pure Italians, all of the same breeding, are on a ridge—just a little Rhode Island hump—the yards being less than a quarter-mile apart—one on the crest of the ridge, one about thirty feet below the crest on the east slope. One yard gave a fine crop of fairly light-amber honey while the other put up a lesser crop of darker honey.

Will some one (say from near Marengo) tell us how to pick a "location" and define what "location" means?

How do you pick up workers for filling queen-cages? Most persons reach for a bee with its head in a cell, and with thumb on one side of the bee and forefinger on the other, "pinch" at the wings. A bland and amiable gentleman commonly called "Charlie," living not a thousand miles from

Johnstown, N. Y., most painstakingly showed me how *he* did it. Makes a grab for any bee that is hiking across the comb, and, with forefinger down and thumb up, sends the finger straight after the bee, hits *ends* of wings which slide up on to the forefinger; thumb at same time shuts down on them, and the trick is done. Very swift and neat as he did it. Tried it myself lately. Finger went too low. Now I have a suspicion that some things one has shown to him had better not be meddled with. It's more than a suspicion—it's a conviction.

AT THE SHOW.

A lot of single-comb observatory hives, some of the well-known commercial type, some of the new type having the ventilation wholly along the bottom of each side. In the former the bees were uneasy and racing about, while in the latter they were quiet and attending to household duties in a perfectly normal manner. And, by the way, do you know that it is a fine art, putting up a nucleus for exhibition? The color of the comb, the color of the bees, and the color of the hive must all be considered. If the hive is dark in finish the comb should be light and bees dark. If hive is light in color, a dark comb and light bees fit. Then one must not have too many old bees nor too many bees of any one age. The quantity of bees must be sufficient to keep the brood warm and yet not crowd things; and in this connection the two panes of glass on each side and ventilation only at the bottom help immensely. If you are to follow the shows next year, just take time this winter to study hive colors and comb colors. He who does it best will stand the best chance of winning.

Another "show" item. Exhibition of queens is more often than otherwise a disappointment to the visitors. In a nucleus the queens are hard to find except by the experienced. When in cages the light is poor and the queen is often hidden under the bees. Queens show best in a special cage about four inches square. The front is glass, ventilation is a small opening near one lower corner, and is wire-screened; glass is only one bee-space from back of cage, and candy food is in the bottom of cage. Thus arranged the queen cannot hide. Hang such cages up like pictures and you have a queen exhibit that is worth while.

When showing queen-cells, arrange the display so the bees cannot completely hide

them by clustering in front of them. Glass on one side only; and that close to the cells with plenty of room behind the cells works nicely if two panes of glass are used with a confined air-space between. There is a knack in getting cells built for show purposes, as you will discover if you try. And you will also discover that making a comprehensive exhibit of queens and queen-cells is an art by itself quite different from other branches of bee culture.

"Don't touch," said the sign; but the finger-prints in the surfaces of the comb honey told a woeful story of the illiteracy of the spectators. I wish the public would learn to read. The managers of some of the shows furnish glass cases for honey and similar exhibits; at others the exhibitors must do so or take their chances. The premiums as a rule do not warrant the risk in showing, to say nothing of the expense, unless one may sell at their exhibit or near it. Wonder if the beekeepers' societies cannot consider these things and take them up with the show managers. They can accomplish more than individuals. I think it is worth considering, and I believe that, if rightly handled, the exhibitions can be made a much greater influence in spreading the use of honey. Some of you "know-hows," please get busy.

Varying with your point of view it is "strange," "interesting," or "funny" what different things arrest the attention of different persons. There was a display of combs arranged to show the difference between the profitable and unprofitable kinds, and also an old black comb with "wax-worms" at work in it, and a few of the moths (dead) pinned to it. It was all a good instructive exhibit, and was fully labeled so he who ran could read. That bunch of worms caused more talk than all else. Poor morbid humanity! But it did stop people, and gave the desired opportunity for talking bees and good beekeeping. And, mind you, there was no honey shown anywhere near that exhibit. Worms and honey is not a combination that it is well for the public to associate.

I saw an excellent exhibit of hives and appliances at a county fair. Every part of the hive was labeled after this manner: "Model hive, simple, efficient, reasonable price." "This size entrance is best for warm part of the year." "Queen-excluding honey-board for keeping queen out of the surplus-honey chambers. Always to be used

this side up." And thus all thru. It was a liberal education to the inexperienced and farmer beekeepers.

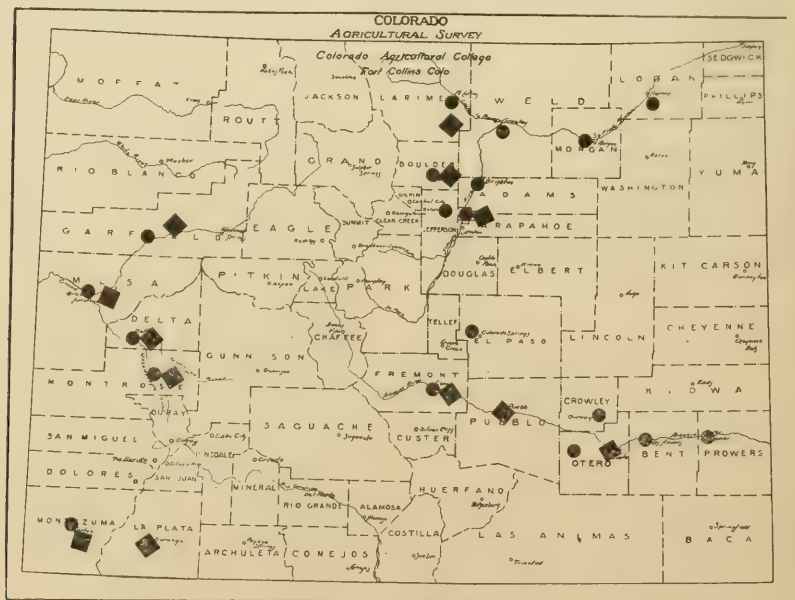
You may be interested to know that it was an exhibit by the educational section of a state body. The supply men may rise to the occasion some time—perhaps when they have a smaller variety of hives and things.

* * *

Mr. Chadwick, in the August 15th issue for last year, expressed doubt as to bees making but ten trips a day. Then he proceeds to cite the great activity of bees working on a bait. I wrote to him, calling attention to the fact that bees robbing—working on "bait"—were not working normally as we all know. He replied by referring to their activity during a heavy honey-flow. I will admit that sometimes a secretion of nectar may be so great as to cause bees to be unduly industrious; but I will at the same time repeat that bees *average* but ten trips a day. This estimate of their labors was arrived at independently by several observers in this country, and by at least one

abroad. To this statement Mr. Chadwick replies that it is not possible to mark a bee so that said marking will not interfere with its normal actions. Unfortunately for him the facts contradict his belief. A little suitable color can be put on the thorax so that the bee does not even notice its application. He may reply that, even so, it does have its effect on the bee. This was taken into consideration long ago, and was proved to be without basis by comparing the actions and trips of bees thus marked with those of bees of special colors in colonies of a different color, as goldens among blacks, etc. Beliefs, suppositions, and prejudices go down before facts. But the gist of the whole matter is this: Bees are not making as many trips as the whirl and confusion before a hive suggests, and are not as busy as legends have it, whether their daily average be ten or twenty trips, so it behooves us to have as many bees as possible in each colony—a condition which will be furthered by good combs and prolific queens producing vigorous, long-lived bees.

Distribution of Bee Inspection in Colorado



The squares indicate horticultural inspectors; the circles, bee inspectors.

By statutory provision, 1909, the Professor of Entomology of the college is State Entomologist charged with the horticultural and bee inspection of the state. He is assisted by deputy horticultural inspectors in thirteen counties, and a deputy who is state bee inspector with deputies in 19 counties.

In addition to their regulatory duties, these men give a good deal of their time to spraying demonstrations in fruit districts of the state, and lectures, printed matter, and personal visits to the fruit-growers.—*From the Colorado Agricultural College Series 15, No. 8.*

NOTES FROM GERMANY

Is a Non-swarming Strain of Bees Desirable?

BY J. A. HEBERLE, B. S.

Of late a number of articles have appeared relative to the question of breeding up by selection of a non-swarming strain of bees. Rev. F. Gerstung, one of the foremost beekeepers in Germany, started the discussion with an article in the *Deutsche Bienenzucht*, of which he is the editor. The following is a translation of the article, abridged. The reader must bear in mind that the writer had in mind only conditions prevailing in Germany.

Is the swarming impulse a quality or property that is by heredity transmitted to the offspring? Gerstung says it cannot be. He considers it impossible to breed up a strain of non-swarming bees, and holds that all endeavors in that direction will prove a failure.

He says, for argument's sake, let us suppose we could eliminate the swarming impulse—what would be the result? The strongest impulse, the propagation of the race, upon which the healthy development and the continuation of the race depends, would be weakened; the bees would become degenerate, and slowly, yet surely, would go toward extinction.

For comparison he writes, let us take the same aim for a breeder of domestic animals—say, for instance, the breeder of hogs in order to get a race that would readily take on fat, the impulse for propagation should be eliminated. The absurdity is at once obvious. But is not the elimination of the swarming impulse the same? That the propagation by non-swarming bees may be effected artificially does not affect the case, since after the elimination of the swarming impulse, degeneracy remains.

With bees the case differs in so far that the supposed elimination of the swarming impulse by select breeding is a delusion. The swarming impulse or the lack of it is not a quality or peculiar characteristic that may by inheritance be transmitted to the offspring.

PROOF OF THE FOREGOING ASSERTION.

Is the swarming impulse a quality of the single bee—the queen or of the colony—just as are size, color, or the sexual organs? Surely not. It is generally known that good honey years are poor swarm years, and *vice versa*. This means that swarming is not a quality or fixed trait of the bees, but a natural consequence of the surrounding weather and flora. In other words, the same colony which showed no swarming

impulse in 1911 may in 1912 swarm excessively. This is not a supposition, but a fact. We (Gerstung) called attention to this in the swarm year 1912, in which all the colonies swarmed, including those that had been bred as non-swarmer.

Notwithstanding this convincing proof, the teaching that the swarming impulse could, by select breeding, be eliminated, was continued, tho it had been conclusively proven that the surrounding conditions stimulate or subdue the swarming impulse.

WHAT STARTS OR STIMULATES SWARMING?

A rich pollen pasture in spring with a moist warm temperature causes a rapid expansion of the brood-nest. The queen finally cannot increase the egg-laying any further, and the young nurse-bees lack opportunity to dispose of their chyle (Futtersaft); this causes a certain physiological tension which leads the young bees by supplying working larvæ with royal food to raise queens that may furnish more eggs—i. e., young larvæ to find use for the chyle—to satisfy the breeding instinct of the bees. As soon as this development has reached this stage the swarming impulse is awakened. If this height of development under different and less favorable conditions is not reached, the swarming impulse is not developed—does not manifest itself.

This may be proven by experiment. If, at the height of the development, we remove the queen, the process which leads to swarming is artificially started. The queenless bees rear for themselves queens. The first queen that is hatched swarms out with her followers. It follows that swarming is the result of favorable conditions of weather and pasture, but is not a quality or trait of the bees or queens which might be transmitted to offspring.

Notwithstanding this, the swarming impulse is treated exactly as the yellow bands of the Italians or the ill temper of the Cyprians. They (certain beekeepers) select and operate with this imaginary quality as if it were a trait that the offspring may inherit from the parent. They do this, altho swarm years from time to time show conclusively that they pursued a phantom.

NON-SWARMING BEES; APPARENT SUCCESS.

How is it that some beekeepers claim they have been successful in breeding a non-swarming strain? Gerstung believes that, on account of too much skill in rearing the

queens, and especially on account of the baby nucleus in which the queens must await the awakening of the sexual instinct and the mating, might cause inferior or less fertile queens. Colonies with such queens do not reach the height of development which must precede the swarming impulse. This is degeneration of the worst kind—not successful breeding. Our queen-breeding methods are moving on a declining plane. We glory in methods that have succeeded in producing a non-swarming strain while we have produced only a degenerate strain—this strain which, by their not coming out to swarm, show that nature has condemned them to extinction, and this is today considered an achievement of modern beekeeping! Beekeepers, go back to nature.

IS THE SWARMING IMPULSE REALLY AN IMPEDIMENT TO SUCCESS?

Gerstung says, only for a bungler (Ger-

man condition). Swarming is the summit in the development in brood-rearing on which, aside from the honey-flow, all success depends. It is the brood which furnishes the workers who at the right time are to gather the crop.

The better one understands how to guide the development, the brood-rearing, to further his own ends, the greater the success.

When we (Gerstung) at the height of the development receive a swarm of 6 to 7 lbs., we consider this an extra addition to the crop. We are glad when our colonies, after having made the most of the honey-flow, give large heavy swarms. We know the swarming colony is rejuvenated, and we have a good productive colony more for the next year's crop. As a matter of course, the beekeeper must understand how to keep the control of the development in his hands.

Kempten, Bavaria, Germany.

THINKING IT OVER

BY GRACE ALLEN

A beekeeper sat by an open hive—
On hill beyond hill how the day was alive!

“He sorta sneered, that store clerk did,
In town the other day,
When I spoke up proud about my bees.
What made ’im do that-a-way?

I aint slicked up when I work, that’s true,—
He’s allus slicked up, hisself.
But I wouldn’t swap this I-talian queen
For all the duds on his shelf.

It’s pants ’n coats ’n shirts all day,
A-trying to make folks buy,
'N me with my bees in the orchard here
A-watchin the rascals fly.

Shet up in a store where he caint well breathe,
With crowds ’n noises ’round,
'N me in the sun—with the hills like this—
'N the bees the only sound.

He sorta sneered, he sorta sneered—
What made ’im do that-a-way?
Law me, I reckon he never see
A day like this ere day!

It’s suns ’n hills ’n seehlike things,
'N thinkin a bit, by gum,
That keeps a man frum sneerin at folks
'N jes makes ’im wish he could hum!”

The beekeeper smiled as he closed the hive.
On hill beyond hill—how the day was alive!

Heads of Grain From Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

When the other fellow tells somebody who tells you about robbing a bee-tree the story goes that they get about a wagon load of honey, but when you do it yourself you're ashamed to say that you got more than a barrel or two—they might not believe you.

The Second Tri-State Field Meet.

The second field meeting of the beekeepers of Illinois, Wisconsin, and Iowa was held in Union Park, Dubuque, Iowa, August 1 and 2. The meeting was called to order by Mr. E. J. Baxter, of Nauvoo, Ills., the president of the Illinois Beekeepers' Association. The excursion and luncheon given by the Commercial Club of Dubuque on the steamer Sidney was greatly enjoyed by all present.

The attendance was about ninety. The beekeepers were honored by the presence of C. H. Bocoek, expert in apiculture of the British Beekeepers' Association; Dr. Phillips, from Washington; also inspectors France, of Wisconsin; Kildow, of Illinois; Blaker, of Minnesota; Pyles, of Illinois, and Elmore, of Iowa. Prof. Jager and his assistant, Mr. France, were also present from the Agricultural College of Minnesota.

The question-box was in charge of Mr. Kildow, of Illinois, and a goodly number of questions of vital interest were discussed, such as weight of sections, prices of honey, differentiation of American and European foul brood, etc.

Mr. Bocoek gave a very interesting talk on the Isle of Wight disease. He told of the

spread of the scourge over the British Isles, and of the great destruction of bees in that country. He is not sure that any cases of this disease have been found in the United States.

A motion was passed providing for a committee made up of one member appointed from each state to bring before the Interstate Commerce Commission the urgent need of the same freight rate on comb honey in the western as in the eastern states.

Another motion was passed to continue the organization, but change the name to the Mississippi Valley Beekeepers' Association. There will be another meeting again next year some time during the first part of August. The committee selected to make arrangements for the next meeting is as follows: Mr. France, Wisconsin; Prof. Jager, Minnesota; Mr. Kildow, Illinois; Mr. Miller, Iowa. J. W. Stine, Sec.

Packed Snugly in Pine Needles.

I have tried almost every thing recommended for use in packing. Some of the materials are good, others medium. I have finally come to the conclusion, after several years of experience, that white-pine needles make the most ideal packing.

Those who live close to woodland, where the stately white pine may grow, may have noticed that, after a rain or snow, when other litter on the ground is damp, the bed of these dead pine needles, sometimes quite thick, is nearly always dry and warm to the touch. This was the reason I was induced to try it years ago; and as an absorbent of moisture and retainer of heat it is far superior to any other packing material that I have ever used.

For want of a better arrangement I take two lath the length of a super inside, and tack three or four lath on these crosswise, cut the width of the super. I then place this rack on the frames; then fill a burlap sack with packing and place it over all. As spring approaches I take one part of the packing out; and when all danger of cold that might chill brood is over I remove the sack.

Enid, Pa.

John R. Lockard.

Just One Good Way to Get Rid of Them.

Have had the worst time in years with yellowjackets. Five weak colonies have been wiped out. I am trapping yellowjackets at the rate of about a pint a day. This has been going on for four weeks, and I begin to see a decrease. Another season I shall have more traps and earlier setting, and I hope this will give better control.

Replying to "Subscriber," page 746, Aug. 15, use a wire-screen fly-trap baited with fish heads or any fresh meat.

San Jose.

Another Subscriber.

Queens Whose Colonies are Weak in the Fall Not Worth Saving.

That we had no loss last winter may be attributed to our belief in fall uniting. Not a fall passes that we do not have colonies lacking, both in stores and strength, to winter perfectly otherwise.

So much regarding the poor wintering qualities of goldens has been said in "Gleanings" that we were somewhat surprised to find our yellowest stock surpassing all last spring. While we have had a few yellow colonies winter poorly, the cause, more probably, was from the queens having gone thru shipment than from degeneracy.

Within recent years we have done practically no feeding. Tho not always, colonies short of stores in fall are quite generally deficient also in other respects, and not up to standard. The queens of such colonies should not be kept, but removed in uniting. Tho it is true that open winters call for an increased amount of winter stores, the rule applies only to a given locality. While in the north from 25 to 30 lbs. is necessary, half that amount will run a colony thru our short winters.

Each winter we have a few days of snow and ice, but not to such an extent as to demand other protection than is afforded by the single-walled hive. For mutual protection, however, against raw winds our hives are crowded into a long compact row. Separation will become advisable only when young queens begin mating, and the row will be scattered widely in forming increase and nuclei.

Ft. Smith, Ark.

Lee Ellis Kerr.

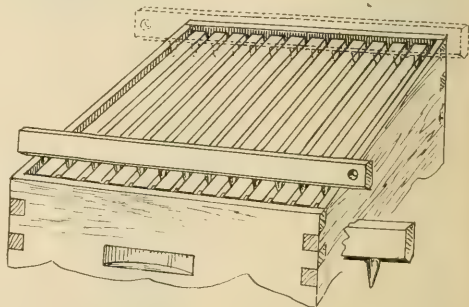
A Frame-spacing Tool.

I have been much interested in the articles which have appeared from time to time regarding the merits of self-spacing frames. While the Hoffman frame seems to be the established favorite, yet there are many, like myself, who prefer the plain old-fashioned $\frac{3}{8}$ frame, firstly, because any one of them can be easily removed from the hive by pressing over its immediate neighbors slightly; secondly, there are no awkward projections in the way at extracting time; and, lastly, they are easily and cheaply made at home by any one who possesses a saw-table and a small circular saw.

As to the rabbet-spacing plan, the bees of this locality are so liberal in their use of propolis that I have never considered that as very practicable.

I have a little device which I have used in my own apiary for six or seven years with much satisfaction, and which is neither of the hive nor of the frame. My hives contain 12 Langstroth frames, $\frac{3}{8}$ x $\frac{3}{8}$ top-bar. The rabbets are plain wood, with bee space below the frames. The hives are 18 inches wide inside—that is, permitting $1\frac{1}{2}$ -inch spacing. One will infer from this that in my early beekeeping days I read "Langstroth on the Honeybee," and was an ardent disciple of Dadant.

I have a spacing device that I have used with much satisfaction for spacing the frames. I take two pieces of spruce or other light tough wood, $\frac{3}{8}$ x 2 x 19 inches, and bevel off one edge of each piece. Then between the two I insert 13 pieces of the same



wood, $\frac{3}{8}$ x $\frac{1}{2}$ x 4, as teeth, leaving space between to slip loosely over a top-bar. The projecting part of the teeth are rounded off and tapered to a blunt point. After examining a hive and replacing the frames I take this spacer from my wheelbarrow (which I use almost continuously in my apiary work), and by pressing it down at each end of the frames they are all spaced exactly. By having the edges beveled, and using a puff of smoke, it is seldom that a bee is crushed.

Fred E. Smith.

Craigvale, Ont., Can., April 24.

What is a Stand of Bees Worth?

To one who keeps bees this is a question that is frequently asked, and is probably the most difficult to answer correctly. To those who know nothing about bees it appears that they ought to sell at a standard market price, the same as corn or wheat; but, instead, bees sell more like skilled labor, according to their ability to deliver the goods.

I have seen colonies that could not be bought for \$15 at the beginning of the honey-flow, and others that stood alongside of them that would not sell for the price of the new hive they were put in only two seasons before.

If a man should walk out to my yard and point out a single hive and ask what it is worth I could give the questioner a fairly intelligent answer; for, knowing the condition of the interior of each hive in the yard, I would be prepared to make a fairly correct answer. To show some of the possibilities I will show what I have done this season. Last spring I had six colonies which I wintered thru in good condition. Each colony had a young Italian queen which had been introduced as soon as the honey-flow stopped in the fall of 1915. I bought queens this spring as soon as I could secure them from the South, and divided until I had 18 stands. These went along until the swarming season opened up. I caught two stray early swarms, making 20.

I held the bees under control till the first of July. By cutting queen-cells, six of the

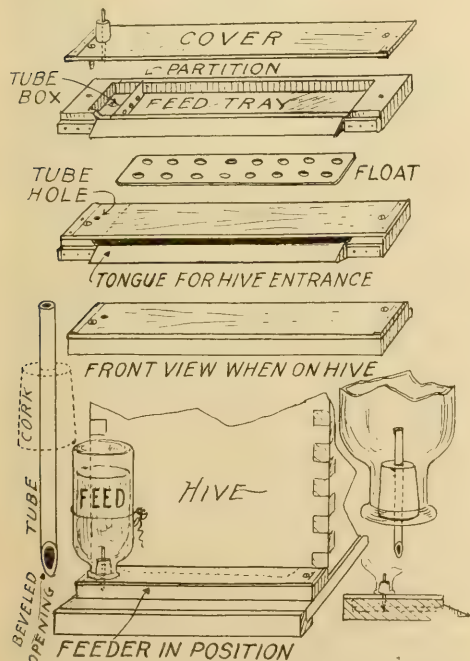
colonies became so strong I thought it better to make a little more increase, so I let the six swarm, making a total of 26. Out of this number 20 colonies produced surplus honey, some of them filling six and even seven 24-section supers, while others filled but one or two. Up to date I have taken 72 twenty-four-section supers from the 20 colonies, or from a spring count of six colonies. This honey is bringing me an average of \$3.25 per case, making a total of \$234 for a honey crop from a spring count of six colonies, or \$39 per colony.

Hiawatha, Kan.

J. W. Admire.

A New Type of Bottle Feeder.

I am sending a sample of my bee-feeder. One of the features of this feeder is that it can be closed up without in any way disturbing the bees. In the second place, one can see whether the bees have eaten all their feed or not. Third, the bees have room enough to take the feed away fast. Fourth, it keeps the bees warm during late feeding in autumn. Fifth, from the very least quantity up to two quarts can be fed, as one can use a bottle on both sides; but still one bottle will generally suffice. Sixth, when feeding no smearing results, and, consequently, no robbing takes place.



After the feeder has been applied to the hive-entrance I fill one of the bottles with feed, put the cork with the little tube (the latter may be made of aluminum) in the bottle, and hold my finger on the slanting slit of the tube. I then draw the bottle toward me, and let the tube go into the feeder thru the little hole. As the little tube

goes into the small hole I withdraw the restraining finger. By driving two small nails in the hive, the bottle can be bound to the hive with string. The tube must rest on the bottom of the feeder. As the bees take the feed away it flows continually out of the bottle.

Grand Ridge, Ill.

Joseph Garré.

[Mr. Garré's feeder-block is long enough to close completely the entrance. Except in cold weather we believe it would be better to have it a little shorter so as to provide a small entrance.—Ed.]

Paper Division-boards for Introducing Queens and Uniting.

The following plan for introducing has proven successful. Remove the old queen and three frames of broodless combs. Replace with a three-frame nucleus and queen, putting it on one side of the hive. Next put in a division-board between the nucleus and the rest of the colony, made as follows: Take a thin board the size of the inside of the hive, having most of the center sawed out, and a sheet of newspaper pasted over the opening. Next lay a sheet of paper over the three frames. Put a screen over entrance in front of the three frames. Make all other spaces bee-tight, i. e., space over rabbets and space by the entrance between the screen and division-board. That is all.

I use a two to three frame nucleus in a ten-frame Langstroth hive, with division-board between for mating. If desiring increase, after removing one nucleus and queen I replace with three or four frames of brood and the old queen that is being replaced by a newly mated queen, using a solid division-board temporarily. Later, after both sides are well filled, replace the solid division-board with one having a paper center, after killing the old queen.

I use a combination feeding super-cover and bee-escape board which I think is handy. It is an ordinary bee-escape board with a hole sawed in to receive a 10-pound pail to be used as what is called a pepper-box feeder. After feeding in the fall I tack a screen over the hole to give upward ventilation. If no ventilation is wanted I place a thin board or enameled cloth over the screen. The screen has a small hole to receive a Porter bee-escape when used as an escape-board. Heretofore I have had trouble in losing chilled bees when transferring lids or feeders in cool weather. This lid is put on early, and the bees can be fed very late in fall, and none lost when pail is removed. In the spring, after brood-rearing starts, I discontinue upward ventilation by covering the screen.

When using the paper division-board don't change frames after bees appear to be united. By putting the queen and her three frames in the center, after the paper had been removed by bees I lost a queen. One colony built cells on the other side of the hive, in which the combs had not been

moved. These bees previously had been superseding an old queen. I destroyed the cells and no more appeared.

St. Louis, Mo.

J. H. Fisbeck.

Pollen on Shoulders from Snap-dragon.

On page 727, Aug. 15, Mr. Lovell mentions a peculiar deposit of yellow pollen which he observed upon the shoulders of his bees, and asks an explanation. During the season of 1914 there was a great abundance of blossoms on the plant known to me as snap-dragon, growing on wet, springy ground which had been cleared of birches and willows the autumn before. The blossoms are lemon yellow, a sort of deformed cornucopia shape, and large enough to admit a bee out of sight unless looked for. The bees enter these blossoms and remain two or three seconds, meanwhile moving more or less. When the bee emerges there is some pollen on its shoulders, and each flower entered adds to the deposit. There are no snap-dragon blossoms this season, and no such pollen-marks on the bees.

Some time ago I visited a beekeeping friend forty miles away, and he had noticed this yellow mark on some of his bees. I suggested snap-dragon, and a short search discovered some blossoms and bees working on them, with pollen on their shoulders.

I take it the deposit is entirely incidental. In looking into the hives many bees so marked were seen, but there did not appear to be any attempt by the bee or bees to remove it.

Hoboken, N. J.

C. D. Cheney.

Italianizing a Locality by Supplying Queens for 25c.

I believe a lot of good can come to the beekeeping industry if we will all do a little work in trying to bring to those who keep bees some helps on "preparedness." This is what we are doing when we get our neighbors to take the bee-journals and join one of the beekeepers' associations. The beekeeper needs just as much to be prepared as the farmer, the merchant, or any of the trades, if he is to be successful.

The way I go about getting people interested in bees is very simple. Any one can do it. I made this threefold combination offer in getting my names. Gleanings 6 months, membership in the State Beekeepers' Association, one tested Golden Italian queen, all for one dollar. Association membership is 50 cents; this leaves me 25 cts. for the queen. Some will say that one cannot possibly raise queens for 25 cts. I know this is true; but there is another motive in letting my neighbors have these queens, even tho I might give them away. I am helping to get all the people in my locality to raising Italian bees, and it is thus easier to keep my own bees pure. Every beekeeper in town, and within a radius of three miles, has given me his name and money for this combination

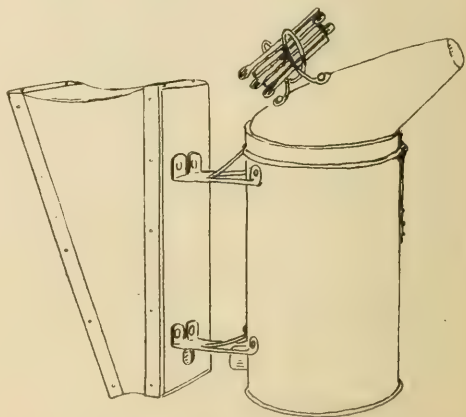
offer. I expect to raise a few young queens at one of my out-apiaries for my own use in replacing the queens taken from those colonies which are preparing to swarm in filling these orders for queens.

Stockport, Ia.

J. W. Stine.

Can You Match This?

Altho I am just a beginner in bee culture I have found that matches are not always handy when I am ready to light up the smoker. On the top of the smoker is a coiled-wire handle for opening the cap. The



space between the two coils is a trifle less than the diameter of a match. Four or five matches may be held, between the wires, and these are usually enough for a day's work. If more than one match is held, heads should be alternated.

Medina, Ohio.

Wesley Manville.

Does Sound Pretty Convincing

I was interested in reading the third item by J. E. Crane, page 714, Aug. 15, referring to the better pollination of fruit trees nearest the bees.

About 50 feet west of my small apiary is a King apple-tree. Last year this tree bore quite heavily on all sides; but it was quite noticeable that the yield was the heaviest on the east side, toward the bees. This year practically all the fruit is on that side of the tree.

Madison, Conn.

F. C. Dowd.

Can bees be kept in the attic of a house? Moline, Ill., July 6.

B. A. King.

[Bees can be kept in the garret, providing sufficient ventilation can be given to prevent combs from melting down. It is usual to put the hives near an opening in the side of the building where the direct sunlight from the windows may not strike them. It would be advisable during the hottest part of the year to have one or more windows open in the garret so that it does not get too hot for the bees.—Ed.]

A. I. Root

OUR HOMES

Editor

For God so loved the world.—JOHN 3:16.
Thy kingdom come; thy will be done on earth as
it is in heaven.—MATT. 6:10.

Please notice, friends, the word *world*, "for God so loved the world." It does not read that God so loved the United States, nor England nor Germany, nor any other nation. It is the whole wide world. It is not the American nor European nor German, nor the negroes of Africa. God so loved us all, and sent his only Son to save us all. If that only Son has not yet been presented to every land and every nation, we, his followers, are more or less responsible.

Once more, that wonderful prayer the Master gave us is that God's kingdom may come on *earth*—this whole planet of ours. God is not only no respecter of *persons*, but he is no respecter of *nations*. I confess I did not think of this until quite recently. In *Our Homes* for Aug. 15, under the head of "True and False Patriotism," I said "Love of one's country may not only be a mistake but an instigation of the devil." After I put it in print my conscience troubled me somewhat. I feared I was putting it too severely. Let me now talk about something else, for just a moment, before we get back to "patriotism."

Years ago, when I was new in the Christian work, we had a beloved pastor. He was young, like myself; but I was so much in sympathy with all he was trying to do that I never missed a word from him in the pulpit, prayer-meeting, teachers' meeting, nor any other gathering. He was a man of wonderful talent and ability, together with a bright cheerful outlook in regard to the work of spreading the gospel. Well, among many other kind words I hold in my hand a letter (just received) from him, which reads as follows:

My dear Friend:—Almost a lifetime has passed since you and I shook hands for the first time, and I came among you in Medina as the immature pastor of your splendid church. I remember, with increasing gratitude and gratification, those dear old days in Medina, and you, my dear friend Mr. Root, were always cordial and appreciative of your pastor, co-operative in every good word and work, and a stimulus and comfort to him. A good many of the people that I knew there have passed away. I often think of you and your home, and all the friends who made my years of service there bright and fairly radiant.

GLEANINGS comes to me regularly, and I enjoy it very much. The copy for Aug. 1 reached my desk yesterday, and I turned to the pages of "Our Homes." The tribute to Mr. Ford is impressive, and I think he is worthy of it. It is a mighty good thing to get a little of the phrase as well as the sentiment of the Scriptures in a periodical.

Please remember me to any friends who may not have forgotten me, and believe me now and always,
Most sincerely yours,
New York City, Aug. 5. C. J. RYDER.

One thing that pleased me about the letter was that he appears to indorse what I said about the possibility of Ford being a Christian, *without knowing it*. Now, if you please, let us go back to that matter about true and false patriotism. With the letter I speak of came a little pamphlet, and I am going to make some clippings from it because it so strongly indorses what I said about patriotism. Below are the clippings:

THE WORLD PROBLEMS OF THE A. M. A.

Secretarial Paper by CHARLES J. RYDER, Sec.

Certain forces which we have thought strong and adequate have proved inefficient in the last few months. Let us note these briefly.

Patriotism has proved a painfully inadequate element in the redemption of humanity. We look across the seas and witness the horrible slaughter and the great crime of the centuries being perpetrated. And yet each nation of either group appeals to patriotic enthusiasm as an adequate motive for these crimes. Patriotism as a motive power for the uplift of humanity is failing wretchedly and miserably.

But in the same terrible conflict science has proved disappointing. Instead of devising means solely for the alleviation of human suffering, science has largely surrendered herself to the production of destructive machinery; of explosive gases; of self-igniting fire, to the disgrace of the name of science and to the horrible murder of human beings. Science has failed. Neither the American Missionary Association nor any other great movement can depend upon science for its impulses of uplift.

Again, secular education has failed. It is impossible to read the utterances of famous university professors in their disgraceful defense of the horrible cruelties and barbarisms without admitting that secular education has failed as a force in the redemption of humanity.

It is a question whether organized Christianity is not failing. Now, if we analyze carefully we discover that the real reason why these forces fail of beneficent results is because they have had no larger purpose than the advancement of their own power and advantage. The patriotism of the European countries that are plunged in war has been a selfish patriotism, a patriotism that sought the aggrandizement of its own nation—not the benefit of the world—but to crush other nations and enlarge its own domain. Education has been used to suppress rather than promote the interests of all humanity. Artificial barriers have been put up around investigation and discovery and research so that the advantages of educational results might be enjoyed only by a single group or nation.

Even organized Christianity represented by the churches has often drawn the lines of demarcation and sought narrow and selfish advantage. Prof. John Briery emphasizes this fact in the following:

"And yet the world's greatest spirits have figured often enough as opponents of human law! Again and again we see them setting the might of their personality against a whole system of regulations, of customs, of authorities. Socrates attacks the Athenian orthodoxy and drinks the hemlock; Jesus puts his 'I say unto you' against the old religion, and is condemned by the church authorities; Lu-

ther, with his 'Here stand I; I can no other,' fronts the whole might of the empire and of the hierarchy; Bunyan breaks the Conventicle Act and find himself in Bedford gaol; Wesley, contrary to episcopal authority, takes to field preaching, and is cast out of the Establishment. Here, you may say, is disobedience, here is defiance of the established order; here is a tremendous self-assertion, a pitting of the single ego against the whole system held as authoritative and sacred.

And why has patriotism proved so inadequate? The reason is not difficult to find as hinted above. Germany has sought her own advantage, and patriotism has simply meant to her and to her citizens the development of her own life and the enlargement of her own opportunities, with no purpose to contribute to the advantage of other nations—the greed of commercialism rather than a generous purpose to divide. And the same has been true of the other contending nations to a great extent. When it comes to an armed conflict the selfish view of national relationships is the dominant view of the so-called patriot. They strive to crush and exterminate rather than to bless and elevate. If the United States presents no larger conception of national duty than that which we see across the ocean, patriotism will fail here as it has failed there. And it ought to fail. The real test is the value to the world and not the advantage to a single national group. We are bound to cultivate and promote this conception of patriotism. Nothing short of this can meet the demands of the world's progress.

In view of the above, I have been wondering if our Fourth of July were not in some respects, especially the way in which we have been celebrating it, a mistake. I do not know whether at this present time England sympathizes with our Fourth of July or not; and I do not know whether any nation besides the United States recognizes the Fourth of July. While considering the matter it rejoices my heart to recognize that the use of firecrackers and toy pistols and cannon has been for the last few years largely done away with.* *Christmas* is a *world-wide* anniversary. All nations can unite in celebrating the birth of our Lord and Savior; and would it not be well if, at this present stage of affairs, we should choose *holidays* that *all the world* can unite on in celebrating? Down in Florida they have a fashion of having their fireworks and things of that sort on *Christmas* as well as on the 4th of July; but as I have not been in Florida in July I cannot speak from experience.

Right here let me give you a little tract that was sent me by some good brother. It seems to me it points out the outcome of all our trouble, and points to the glad time when God's kingdom shall have come, and his will be done on earth as it is in heaven. I have read it over and over, and every time I read it it gives me a thrill. Here it is. Now see if it does not give *you* a glimpse of the glad time coming:

* A grandfather, a neighbor of ours in Florida, made each of two boys a Christmas present (?) of a little gun. Shortly after, while shooting fish, one accidentally shot the other, killing him instantly.

OTHERS.

Lord, let me live from day to day
In such a self-forgetful way
That, even when I kneel to pray,
My prayer may be for *others*.

Help me, in all the work I do,
To ever be sincere and true,
And know that all I do for you
Must needs be done for *others*.

Let self be crucified and slain,
And buried deep, and all in vain
May efforts be to rise again
Unless to live for *others*.

And when on earth my work is done,
And my new work in heaven begun,
Let me forget the crown I've won
While thinking still of *others*.

Others, Lord! yes, *others*,
And none of self for me;
Help me to live for *others*,
That I may live for thee!

All that is necessary to make the above apply to patriotism instead of individuals is to substitute "our country" in place of the word "me." Is it not likely that we as a people, say here in the United States, have been praying too much for our own nation and too little for other nations? God knows our nation just now is in sad need of the prayers of Christians; but is it not possible that our nation would be raised up and helped by praying for *other* nations as well, instead of ourselves only, or for our own United States?

The third verse takes hold of me particularly:

Let self be crucified and slain,
And buried deep, and all in vain
May efforts be to rise again
Unless to live for *others*.

May the great Father above bless the message of this Home paper.

"WHAT HAVE WE TO GAIN BY HURTING ONE ANOTHER STILL FURTHER?"

We clip the following from the *Christian Herald*; and, if I am correct, they take it from *Collier's Weekly*:

What have we been fighting for? What are we fighting for? Do you know? Does any one know? Why am I spending what is left of my substance, and you what is left of yours, to keep on this war against each other? What have we to gain from hurting one another still further? Why should we be puppets any longer in the hands of crowned fools and witless diplomats, even if we were dumb and acquiescent before? Does not the blood of our sons now cry out to us that this foolery should cease? We have let these people send our sons to death.

It is you and I who must stop these wars, these massacres of boys. Massacres of boys! That indeed is the essence of modern war, the killing off of the young. It is the destruction of the human inheritance; it is the spending of all the life and material of the future upon present-day hate and greed.

I think the above hits it pretty well. Modern warfare is the business of killing off our brightest and best young men, and that, too, right in the prime of life. I might add it is the killing-off of the most *courageous and useful* young men the world can produce; and the responsibility, as hinted at above, of having this awful carnage continue, rests on the shoulders, more or less, of every one of us.

Here is something from the *Independent Farmer* along the same line. With what a fine piece of sarcasm they dignify the killing business as a new "industry"!

THE EUROPEAN KILLING INDUSTRY.

The war in Europe is now reaching out toward the two-year mark. Its murderous ramifications now embrace the earth, sky, sea, and subsea. Its industrial and commercial phases and requirements reach to the ends of the earth, and influence the labor and culture of all civilized nations. The war has been so insistent, so steady going in its homicidal enterprises, that the world has come to regard it somewhat as a great industry, not of mining nor of commerce, but of killing. We have become so habituated to the tragedies of this war that any sudden termination of it would give the world something akin to an intellectual shock. The mood, the spiritual attitude would be voiced by the words: Is it possible? Can it be that those demon spirits that have been actuating the warring rulers of Europe

so long have loosed their grip on the mentality of those kaisers and czars and kings and sultans, and that reason has once more been enthroned in the seats where wars are made? There is little doubt that when the end of the war appears it will come upon us suddenly and from an unexpected source.

PREPARING FOR WAR TO PRESERVE PEACE.

We clip the following from the *Christian Herald*, written by Rev. R. C. Helfenstein, pastor of the First Christian Church, Urbana, Ill.:

I believe our nation had a thousand times better make an appropriation for a billion dollars to relieve the suffering millions in Europe today than to spend a billion dollars in preparation for human destruction. I believe America had a thousand times better spend a billion dollars in seeking to promote peace than to spend it in seeking to prepare for war. Suppose we spend a billion dollars in building battleships that are superior to any owned by England or Germany. Those countries would not rest until they had built ships just a little superior to ours, and equipped them with guns that would carry just a little further than ours, and so the game would continue indefinitely. As long as preparedness for war is in vogue, no nation is going to rest until it outdoes the others in efficiency of armament, and hence there will be no rest. Wars and rumors of wars cannot cease so long as nations follow the damnable policy of preparing for war to preserve peace.

POULTRY DEPARTMENT

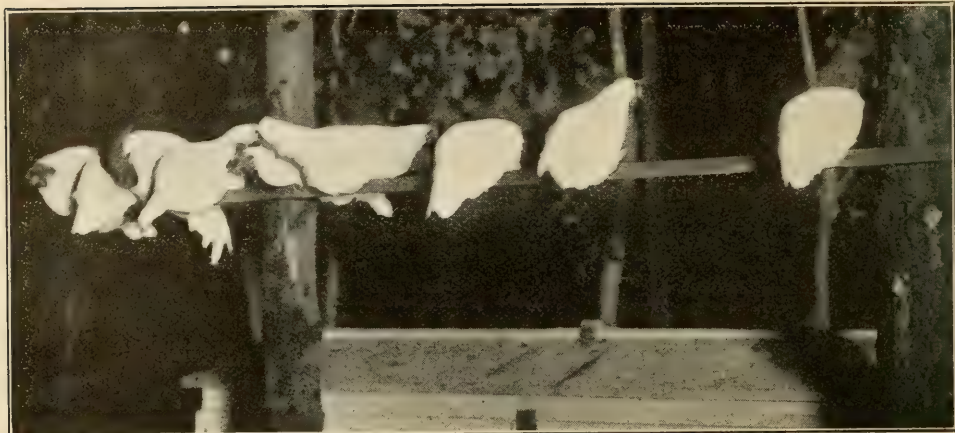
God blessed them, saying. . . and let the fowl multiply in the earth.—GEN. 1:22.

AN OPEN-AIR "SLEEPING-PORCH" FOR CHICKENS: MY CHICKEN STORY.

For several years past there has been much talk and quite a little excitement about sleeping outdoors in wire-screened sleeping-porches; and a lot of good people sleep practically out of doors in winter as well as in summer, even up here in the North, where we have zero weather; and I believe the general agreement among doctors and everybody else is that outdoor air is of great benefit. Of course elderly people as a rule cannot stand as well the outdoor sleeping-porches in the dead of winter; but the whole wide world has, I am sure, been greatly benefited by what has been said and done about outdoor air, especially during the hours of sleep. There is one queer thing about it that I have never been quite able to understand fully. If I sit down by an open window, especially with my back turned toward the breeze, I am sure to catch a cold. We are told that a "draft," especially on the back of the neck, is apt to do harm. But when one is right out in the wind no harm comes at all. I remember reading about a man who

camped out in California. As long as he slept outdoors on the ground, no matter how cold and windy, he was all right; but when he slept indoors, even with the windows and doors all open, he caught cold, because indoors there was a "draft," or what people *call* a draft; but right outdoors, say on top of a hill, there is absolutely no such thing as what people *call* a draft. I can remember the time when doctors told their patients that the "night air" was bad and unwholesome, and advised them to shut every door and window. Yes, I have a few times been obliged to sleep in rooms with every door and window closed because the other occupants of the room could not stand a bit of draft; and it was down in Florida, too, but it was years ago. I have been in church when the doors and windows were all shut tight because some old "granny" couldn't stand the breeze. Well, the whole wide world is "getting wise," at least I hope so, on the importance of outdoor air.

Does some one say, "I thought by the heading that this was going to be a chicken story"? Well, friends, we have just got to the point. I have been telling you all along about the Lady Eglantine chickens. Well,



My "outdoor sleeping-porch" for the Eglantine chickens.

when the hot weather began to come on, they protested against being obliged to sleep in the little poultry-house you see in the picture. They wanted to climb up among the evergreen and maple trees; and some of the enterprising pullets did get away up in the tree-tops. I finally caught them and clipped one wing close, besides clipping the lower branches of the trees, so that the fowls could not roost any more in the tree-tops. Then they got on top of their domicile, and looked so longingly for a branch of a tree that they could reach in spite of the clipped wing that I felt sorry for them. I nailed a pole across just high enough to enable them to hop up on it; and one dark night when they had settled down for their snooze in the open air, Huber, by means of a flash-light, photographed the whole "happy family." The big rooster, four and a half months old, evidently did not wake up. Some of the younger pullets opened their eyes, as you see.

Now, friends, how many of you are keeping your chickens under cover during this hot July and August weather when they would be a thousand times better off in the open air? Don't you believe you would get more and better eggs and more chickens, and better chickens, by having a special sleeping-porch for the *chickens*, as well as one for yourself? Read that first chapter of Genesis, and see how many times mention is made of the "fowls of the air." When it comes toward zero weather up here in the North, very likely they need shelter to prevent freezing the combs. My experience is that, when the fowls have been accustomed to roost outdoors, say in trees, they are loath to go back inside, even when freezing weather comes; but by taking a little pains this can be easily managed.

The spikes that hold the pole are not driven clear in. When the nights become too frosty I propose to take the pole down and teach them to roost inside. When you are traveling again, just take a look at the poultry-houses everywhere. Many of them have glass sashes, which may be all right here in the North for winter, but just see how many houses you can find with glass windows all in place, *all summer long*. By the way, the same thing is true more or less with our stables for horses and cattle. Windows are splendid things in cold weather; but when July and August come along, for humanity's sake *do* pull every window *clear out*; even if storms do beat in a little during the summer time, the harm they do does not begin to counterbalance the lack of abundance of good air. I honestly believe a lot of the troubles with poultry, horses, and cattle, and perhaps pigs also, are the outcome of poorly ventilated sleeping arrangements. See how happy those chickens look on that pole. I can go up in the evening and pat them on the back, and say "Good biddies," and they give me kind words in their own language in return. There are two pullets that will be five months old the first of September. Today is Aug. 23. They have big red combs, and they are singing every day as if they contemplated laying eggs. Don't you believe the outdoor air during these hot months helps them to think of laying eggs? Let me digress a little.

Years ago one of my most intimate friends was a beekeeper by the name of Blakeslee. We used to do a lot of visiting

* *Later, Aug. 29.*—I hold in my hand a little egg weighing 1½ ounces, just laid by one of my "Lady Eglantines." As nearly as I can figure she will be five months old Sept. 1; so she laid her first egg when 4 months and 29 days old. There is one more

back and forth. He bought my big wind-mill years ago, and paid me for it in hives of bees. Well, one of his daughters is not a beekeeper, but she is a "chicken woman." She has now something like 2000 Leghorns, big and little, and 900 laying hens. These laying hens are shut up in rather close quarters, and never get out to have the run of the farm—that is, after they commence laying. No males are permitted among her laying hens. Miss Blakeslee has one

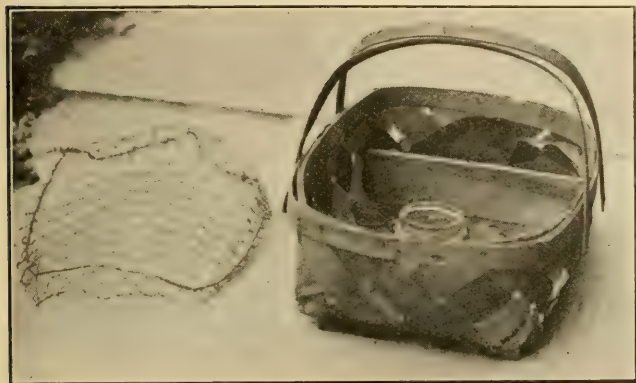
A GLIMPSE OF THE CHICKEN BUSINESS AND GARDENING DOWN IN FLORIDA IN JULY.

The letter below is a rather long one, I admit; but so many people are wanting to know about Florida in summer time, especially in regard to chickens, gardening, etc., I have thought best to give it entire.

Mr. A. I. Root:—The last issue of GLEANINGS has just arrived. I was much interested in reading about your little Eglantines, and had been wondering how they were coming on. I am glad you are having such good luck with them. I used to be very enthusiastic over White Leghorns; but as I am not as spry as when younger, and have a lame back, my enthusiasm has waned. A chicken that is easy to handle, and that will "stay put" suits me better now, so I have taken up the Buff Orpingtons and like them first rate. They are quiet, and good layers. I am trap-nesting a pullet that I call "Lady Valentine" because she laid her first egg on Saint Valentine's day. She has now, in a little over five months, laid one hundred and twenty-five eggs, and is still pegging away; so it looks as if her year's record were likely to be pretty good.

About two weeks ago I took off a brood of little Valentines.

They are husky chaps, and are doing finely so far, tho I believe July is considered the least favorable month of the year for raising little chicks in Florida. I feed plenty of thick sour milk, and that helps wonderfully to keep them healthy and growing. I suppose the greatest danger that threatens them is that they may get beaten down in one of our dashing summer rains some time when I am not around to hustle them under shelter. I am getting quite a few eggs now from my early spring pullets. I have thirty that were hatched February 3, so they are not six months old yet, but nearly half of them are laying. One began when she was just four months and eighteen days old; several others when they were about five months. I have never had pullets of any of the large breeds reach maturity quite as soon as these. Their mother did not lay till they were seven months old. I attribute their early development to special care in raising them. One thing in particular was—no crowding. I weeded out the cockerels for eating purposes when they were from two to three months old. Then the hens have scarcely known what it was to feel hungry. Plenty of



Baskets that brought the nine chicks from Bradentown, Fla., to Medina, Ohio. Three of the chicks were four weeks old, and the other six only one week old.

pullet that began to lay, I think, when it was only four months and five days old. Well, as many pullets begin to lay when four or five months old, how old must a brother of hers be in order to do his part in the way of "replenishing and multiplying" the "fowls of the air"? This was a query; so I purchased two two-year-old hens of Miss Blakeslee, hens that practically had never seen a male bird since they began to lay. I put the two hens among the Eglantines. They are close to that young rooster there on the perch. You will notice they are apparently "good friends." At this date they have laid 15 eggs, and these 15 eggs are under a sitting hen. When she has had them five days I can tell whether they will hatch or not. If it were not counting chickens before they are hatched I might go on and tell you that I am planning to ship the whole outfit, chickens and all, down to Florida about the first of November. Meanwhile some veteran poultryman might tell me if chickens from those two old hens mated with that cockerel, four and half months old, will produce good strong chickens.*

pullet of the same age which I expect to lay soon. Of course I shall keep a record of the eggs laid by each of these two pullets, and we shall soon know if she promises to be a "chip of the old block."

Still later, Sept. 5—The companion to the pul-

let mentioned has also commenced laying, as has also one of the pullets hatched three weeks later; or, in other words, this last-mentioned pullet laid an egg when four months and eight days old; and not only that she laid an egg the next day, and still another the third day, and just now promises to lay an egg every day. Of course, the egg is small, but it is an egg. Just one thing more: This pullet has a comb so large, standing straight up, that I feared she was going to be a rooster; and, in fact, she looked like a rooster as she sat there on the nest. Her juvenile cackle (no "rooster") when she comes off the nest is genuine "music" to your old friend A. I. Root.

* I am sorry to tell you that the sitting hen I put on those fifteen eggs proved to be unfaithful to her task, and not an egg turned out fertile. But in a second setting of 13 eggs, every one proved fertile, so my 5-months-old cockerel is O. K. so far.

grain and green stuff and milk, and a dish of dry bran was kept before them all the time to pick at in their leisure moments.

In a recent copy of the *Rural New-Yorker* I notice they recommend feeding moist mashies to hasten maturity in pullets. It has always been a hobby of mine that young chickens thrived best on dry feed entirely; but judging by these Orpington pullets I rather think there is a little something in the mash theory; for when they were small, and till they were perhaps three months old, I was very busy with my farm work, and my wife took charge of feeding them. Contrary to my advice (you know women will do as they please sometimes), she literally stuffed those chickens with mash "because they loved it so." She said I needn't worry about its hurting them any, and it seems it did not. Not a chick was sick, and the only loss was three captured by a hawk. They surely did grow fast. The cockerels weighed nearly three pounds in less than three months, and a pullet laid in less than five. It looks as if the joke was on me. Nevertheless, I still maintain that such treatment would not do for Leghorns, and may be it was only mixing the mash with sour milk that preserved the Orpingtons from acute indigestion.

I see you are raising corn and velvet beans on your Florida land this year instead of feterita, etc. Well, so am I. Last summer my Egyptian wheat, chicken corn, and feterita grew to perfection, making a magnificent crop of heads, and I thought I was going to have an abundance of feed for my poultry; but my experience was similar to yours—the birds did the harvesting. As soon as it started to ripen, the blackbirds came in flocks and droves and stayed till it was gone. I managed to get a few heads by cutting them before they were ripe; but of course that was not much good, so the whole thing was practically a failure, and I made up my mind quite emphatically that this year I would raise something they could not get. I have fifteen acres of velvet beans and eight acres of corn. The beans crushed make a good chicken feed. If there is a mill handy to you in Bradentown you might try some of them next winter. Mine are mostly the Chinese variety. They grow in such big clusters that they are easy to gather; and when I have picked what I need I shall turn my hogs and cattle in to finish the job. I planted velvet beans in my cornfield in the row with my corn, and now they have climbed to the tops of the tallest stalks and have yards of vines waving around up there looking for new worlds to conquer.

We are having plenty of rain here this summer, and things are growing finely. I am going to have a fine corn crop, and my cassava, chufas, Japanese sugar cane, etc., are all looking well.

I must tell you a cassava story that amused me very much. One day last spring I had a long root of it lying on the back porch, which I was showing to a friend from the North.

"My," he said; "I wouldn't want to plant any of that stuff. Think of having to dig down into the ground six or seven feet to get out a crop! How in the world do you ever manage it?"

He was quite relieved when I explained to him that cassava roots have the obliging habit of growing horizontally a few inches under the ground instead of vertically.

Your great-granddaughter surely takes a good picture. She is a mighty bright-looking baby for only eighteen days old, and you can't be too proud of her. Dade City, Fla., July 24. C. H. TIDD.

There are several points in the above letter that interest me greatly, especially the matter of getting pullets to laying when only five or six months old. I have repeatedly hatched chickens almost every winter

month; but so far as I could discover none of them began to lay until they were pretty well toward a year old.

In regard to the feterita, we had a great crop; but the birds had gathered every seed before I got there except a few heads that were gathered and stored away until I got around. And a blight of some sort killed most of the second growth, so we had quite a job of turning the great mass of stalks, some green, and some dead and dry, under the ground. Indeed, it was a benefit to apply this humus, but nothing like the velvet bean or some other *legume*.

A. I. ROOT, JR., AND SOME OTHER THINGS.

The readers of GLEANINGS may not all be aware that there is another A. I. Root "coming on." This younger A. I. Root is now eleven years old, and he goes around with his father, E. R. Root, when the father lectures on bees. The son assists also in the handling of bees before the audience. With the above explanation the following letter to Alan I. Root will be understood:

To Master A. I. Root, Jr.:—The boys and girls of Empire School have become exceedingly interested in bees. At least two boys have been promised the chance to raise bees this summer at their country homes, and they hope to handle them as did the little Medina boy they saw exhibiting bees.

Three different times the teachers have had tiny soda biscuit and honey for the noon lunch; and a certain home in Lakewood is to include honey on the bill of fare.

Miss Dawson and myself, who are the science teachers, hope by another year to install glass hives, such as your father spoke of, in Empire School. Miss Dawson was very sorry not to meet your father personally. Her grandfather was in the bee business years ago, and her father was one of the earliest subscribers to the "Bee Man." Miss Dawson's sister is trying to make Cleveland a "flyless" city. Doubtless you have heard something about her efforts, and really she has almost accomplished her purpose. Isn't that wonderful?

You chose a very fine gentleman to be named after. Much of the best there is in Medina is directly due to your grandfather. That you will know by and by.

With best wishes for your happiness and success,
MARY C. PHILLIPS.
Empire Junior High School, Cleveland, O., May 20.

It was my pleasure a few days ago to meet the good lady who has been the moving spirit in banishing flies from the great city of Cleveland; and, if I mistake not, she has not only (thru the *press*) extended her crusade to the surrounding homes but to surrounding farms in the country.

We have been having the hottest July and August I think I ever witnessed, and hence the weather has been unusually favorable for the propagation of flies; but there are fewer flies in and around our

home, and I think I may say in the office too, than I have ever known before. The fly crusade is proving to be a success. Just

consider for a moment what one woman can do when she has an inspiration; and she is not a very big woman after all.

TEMPERANCE

MOB LAW AND THE SALOON BUSINESS AT LIMA, OHIO.

On this first day of September the papers are printing big headlines in regard to a mob of about 3000 that stormed the jail at Lima, Ohio, because a big colored man assaulted a young wife, slashing her with a knife, and because the sheriff refused to tell them where to find the culprit whom he had taken prisoner. They put a rope around his neck and threatened to hang him. See the following from the *Plain Dealer*:

LIMA, Aug. 30.—Sheriff Eley, who escaped the mob, was found hiding in the Elks' home. He was taken to the principal street corner by 1000 blood-crazed men, a rope placed around his neck, and the end thrown over a street-railway pole. The mob threatens to hang Eley unless he tells where the negro is hidden. Efforts of police to reach Eley were futile.

The mob cut the trolley rope from an interurban car and knotted it about Eley's neck. Police are powerless. Chief McKinney has called on all citizens to join his forces, but no one has responded.

If I am correct, this good sheriff refused to hand over the prisoner to a crazy mob, even tho his refusal might cost him his life. Read the following:

Doris, four years old, daughter of Sheriff Eley, died in the city hospital tonight. The child, seriously ill last night, was carried from the sheriff's house when part of the mob went thru the building in search of the sheriff. She died this evening with her bruised and battered father at her bedside.

A sister of Mrs. Eley, a nervous wreck as a result of the violence, is in the same hospital.

SAY GRUDGE WAS REASON.

Lima officials without any equivocation charge the roughest element of the city with making yesterday's assault on Mrs. Vician Baber by a negro giant an excuse to settle a grudge it has borne Sheriff Eley for a year. County Prosecutor Ortho O. Barr has a list of nearly fifty of the ringleaders of that drink-inflamed mob that wanted to lynch the negro, and then wreaked its vengeance on the sheriff who foiled its plot.

Swift retribution is promised the ruffians who broke into the jail and dangled the naked sheriff at the end of a rope because he would not reveal the hiding place of Charles Daniels, the herculean assailant of Mrs. Baber. Prosecutor Barr will submit his list of names and full details of the orgy to the grand jury next Tuesday.

Mayor Bayliss Simpson and Chief of Police Rollie H. McKinney corroborate the assertion of Prosecutor Barr that the attack on the sheriff was the culmination of a year of persecution following Sheriff Eley's appeal to the militia to stop a prize fight in Lima last Labor Day. Both the mayor and the chief of police have assured Prosecutor Barr they will back him to the limit in his determination to punish the ring-leaders.

There are several things in the above to which I wish to call attention. First, if I am correct this same crazy drunken mob lynched a negro some time ago. Second, it was not their righteous zeal to avenge the wrong suffered by the young woman so much as it was to vent their spite on this righteous and courageous sheriff. About a year ago he was instrumental in stopping a prizefight that was going to be "pulled off" by this same crowd. The county prosecutor tells us there were nearly fifty "drink-inflamed" ringleaders, and things were in such a wretched state of affairs at Lima that a crowd estimated at 3000, full of drink, followed the drunken rabble. I do not know how many saloons are now running in Lima. When the trouble first started, somebody had sense enough to order the saloons all closed. I do not know whether the order was really *carried out or not*.

Just one thing more. There were two saloons in the city that were run by negroes. If any town or city permits colored men to run a saloon, selling to black or white or anybody else, is it anything strange that a colored man, crazy with drink, should assault a defenseless white woman? Nothing is said in any of the papers, so far as I can gather, about going to the bottom of the matter, and closing the saloons, *for all time to come*. The order was given to close the saloons *after* the drunken mob got under way; but it did not seem to occur to anybody that the saloons running day and night, full blast, would, as a matter of course, bear just such fruit as Lima is now gathering. Has not the prohibition wave reached Allen Co.? and is it not about time that she decide, like the rest of the world, that it is the *saloon* that is the real guilty party—not the negroes nor the Indians, nor low-down white men? May God help us.

"MOB TONIC;" SHALL OHIO CONTINUE TO SUPPLY IT?

After the above was in print I found the following in the *American Issue* for Sept. 8. Notice the concluding words:

LIMA MOB STARTED FROM A SALOON.

According to press reports, it was a liquor-inflamed mob which disgraced Lima last week, and which resulted in the sheriff nearly losing his life, and in the death of the little daughter of the sheriff from the shock of the mob's attack on the jail to get a prisoner to lynch him.

Dispatches are to the effect that the nucleus of the mob was formed in one of Lima's "respectable" licensed saloons, and that the drinking of liquor nerved the men for their lawless act. The evening of the day following the work of the mob, the saloons of Lima were closed at 6 o'clock to prevent further trouble.

This is the first work of an Ohio mob since last January, when drink-crazed men burned and looted East Youngstown and destroyed a million dollars' worth of property and killed several persons.

John Barleycorn is right on the job when the mob plans its lawless deeds, and the booze demon gloats over the havoc for which he is largely responsible.

The tragedy at East Youngstown last January, and the inexcusable action of the mob at Lima last week, furnish two more cogent reasons why Ohio should rid herself of this mob tonic.

THE CONSUMPTION OF LIQUOR; IS IT ON THE INCREASE OR DECREASE?

So many statements are made in *some* (?) papers to the effect that the consumption of liquor is on the increase I thought best to refer the matter to the General Superintendent of the Anti-saloon League, and here is his reply:

Dear Mr. Root:—All the *Vindicator* says may be true, which does not mean anything, for these reasons: First, when liquors are withdrawn from bond they appear on the Internal Revenue Report as "consumed," while they may not be consumed at all. They may be withdrawn and placed in warehouses for various reasons, as is often the case. But the Internal Revenue Department puts this down at once as *consumed* because the Internal Revenue Department cannot follow them to their ultimate destination. There may have been an exceptionally large quantity, as is often the case, withdrawn in that particular month.

Second, it may be possible in the consumption of beer that May showed an increase. The great munition factories that are running full heat, and employing hundreds of thousands of men at large wages, many of whom are drinkers, may have consumed a good deal of beer during that month. It should be remembered, however, that there was a decrease in the consumption of beer last year of about two million barrels, and this supposed increase is not an increase over the original amount consumed, but an increase over that consumed last year, which was a great decrease over preceding years. These things fluctuate when regarded by the month. It is year by year that shows the steady throttling of the traffic.

P. A. BAKER, General Superintendent
Anti-saloon League.

Westerville, O., Aug. 18.

In addition to the above I think I have seen it stated that large amounts of alcohol are now being used in the manufacture of explosives for the "war industry," and that this has been counted in with the consumption of liquors as a beverage. The finances of the various breweries as given in our newspapers indicate also that the booze "industry" is on the decline.

After the above was dictated we found the following, which I clip from the *National Daily* for Aug. 21:

SLUMP IN LIQUOR CONSUMPTION.

WASHINGTON, D. C., Aug. 19.—The liquor-revenue collections for the fiscal year 1916, exclusive of

emergency revenue, shows a decrease in receipts on beer of \$1,155,327.35 as compared with the previous year. This is according to the preliminary report of Internal Revenue Commissioner Osborne.

According to the Commissioner's report, there was produced, during the past year, 32,613,050 gallons of denatured alcohol, used exclusively in the arts, industries, and for scientific purposes, of which 19,666,901 gallons were used in the manufacture of munitions and smokeless powder.

It is estimated by experts who have examined the preliminary report of the Internal Revenue Commissioner that the full report will show that the amount of whisky consumed for beverage purposes the past year is 1,609,343 gallons less than the amount consumed in the fiscal year of 1915; while the slump in the consumption of beer in 1916 as compared with 1915 is 1,182,193 barrels.

ALMOST A MILLION DOLLARS' WORTH OF LIQUOR DESTROYED.

* We clip the following from the *American Issue*:

Girard is a little town along the Georgia-Alabama border. Liquor producers piled booze into the town, expecting to ship it over all the dry territory. But the dry laws of Alabama and Georgia interfered. It is estimated that nearly one million dollars' worth of liquor was stored in the town. The judge ordered the stuff destroyed, and every day a deputy sheriff and a posse of men have been engaged in smashing bottles and emptying kegs.

It is estimated that \$300,000 worth of intoxicants was poured into the river in one day. An attempt was made to stop this wholesale destruction of the liquor, but the judge ordered the officers to proceed. Some of the fellows engaged in handling the stuff are being handed out heavy sentences. C. G. Phelps was fined \$2500 and sentenced to three years in prison. Benjamin Edwards was fined a like sum, and sentenced to prison for 30 days.

If this kind of work continues, the liquor people had better pack up and retire as quickly as possible.

Here is something more from the *American Issue*, along the same line:

TRYING TO ESCAPE THE STORM.

Philadelphia saloonkeepers are alarmed at the tidal temperance wave which is sweeping the country, and 240 of them want to quit the business. Dispatches say that more than 1000 saloons thruout Pennsylvania are on the ragged edge, and are seeking customers. Real-estate brokers making a specialty of handling this class of property are loaded down with lists. What is worrying the saloonkeepers of Philadelphia is the probability of the coming legislature enacting a local-option law.

"GOD'S KINGDOM COMING."

We clip the following from the *Youth's Instructor*:

When the province of Ontario goes dry September 16, by act of the provincial legislature, Toronto, with 400,000 population, will be the largest dry city in the world.

One of our office force informs me that he was in Toronto only a few days ago; and he said the whole great city was actually busy in "preparedness" for the coming temperance victory. He says he met one man who said something like this: "It is

true I have been drinking more than I ought to; and I, for one, am 'confounded' glad of what is now coming."

"FORTY DISTILLERIES AND A DOZEN COTTON-MILLS;"
NOW, "SIXTY-EIGHT COTTON-MILLS, NO
DISTILLERIES."

For many months I have been reading your temperance articles in GLEANINGS, and enjoy them very much. I want you to see what has been done in this county along that line. I am enclosing you a small folder showing the advancement that Gaston County has made. I am a young man, but I can remember when Gaston Co. had more than 40 distilleries and a dozen cotton-mills. Today this county has 68 cotton-mills and, of course, no distilleries.

Gastonia, N. C., Feb. 23. J. L. BEAL.

We clip as below from the folder:

Indeed, the old order of things has changed. Less than 34 years ago the good old home-grown "corn liquor" whose excellences of quality one so often hears extolled, flowed, almost as free as water, in the valleys and on the hills of Gaston. It was made on the banks of every stream, and was dispensed at the rate of "all you can drink for a nickel" at almost every cross-roads grocery in the county. To-day you can't legally get a nickel's worth "for love or money."

"LOOK AT THE MONEY THAT WAS IN IT."

I presume our readers have noticed a statement in the papers to the effect that a fiend in human shape in New York has confessed to being instrumental in getting *hundreds of young girls* into the white-slave traffic. The clipping below from the *American Issue* gives us the particulars:

The New York *Evening Sun* of August 16 recounted how Yushe Botwin, seated in the center of a circle of newspaper men in the private chamber of District Attorney Swann, told his amazing tale of his life in the underworld. The story was so startling as to cause District Attorney Swann to exclaim:

"This man has told me a story which amazes and shocks me, and I am frank to say that I did not think anything so terrible could exist in this city."

The *Sun* said:

"Thruout his entire story the feeling of Botwin that the District Attorney had done him an irreparable injury to deny him the means of a livelihood was apparent. The question of right and wrong has never entered his mind. His arrest, he thinks, was a great injustice, and should never have taken place. "Did it never enter your mind what a great wrong against society you were doing, and how you were deliberately ruining the lives of hundreds of innocent young girls?" Mr. Swann asked the prisoner.

Botwin shrugged his shoulders, and with an amazed look on his face, as tho that were an entirely new idea, said: "Look at the money that was in it."

The liquor interests rest their claim for existence exactly upon that same foundation—the money that is in it. "Great is Diana of the Ephesians!"

White slavery and the liquor-traffic travel hand in hand.

The above holds up to the whole wide world the real attitude, not only of the white-slave traffic, but of the entire liquor-traffic, in a way I have never seen it before. This fellow, after his confession, seemed to think the "big money" that was to be made in the business was a sufficient *excuse* for entrapping and debauching and sending down to ruin innocent young girls—just such girls as we have in our own homes. If there ever was a human being on the face of the earth that is not fit to be permitted to live another twenty-four hours, it is this fiend in human shape who gave as an excuse or as a plea for letting the business continue, "Look at the money that was in it."

HIGH-PRESSURE GARDENING

BEES AND "GRAPE JUICE."

There has been a good deal said about the importance of bees to fruit-growers; but I have never before seen an intimation to the effect that bees were in a like manner an important adjunct to a good crop of grapes. I clip the following from the *Florida Grower*:

BEES HELP POLLINATION OF GRAPES.

Having heard many complaints as to Muscadine type of grapes not bearing well, and also having numerous failures ourselves here at Oneco, I wish to state to the readers of the *Grower* that I think the matter is easily solved. It is not the lack of pollen only, but lack of a carrying agent; and where bees are kept the grapevines are annually loaded with fruit; where there are no bees, the vines have very few or no grapes.

It is absolutely necessary, we have decided, to keep bees near grape-arbors if one expects to get any fruit regularly, so we have invested in a lot of bees, having seen our neighbors with bees enjoying a big

crop of grapes every year. The Mish grape now ripening is the earliest of the Muscadines, and to our personal taste the finest grape that grows—vines simply loaded down, with bunches up to 20 or more grapes each, perfectly sweet and delicious. Now we know that bees insure a crop of grapes, there is apparently no reason why all these various Muscadines cannot be grown in enormous quantity all over Florida and the South.

E. N. REASONER.

I am very glad indeed to get the above, especially as it comes from such an excellent and reliable authority as our good friend E. N. Reasoner, of the Oneco Nursery. So far as I know, grape-growing has not assumed such importance in Florida as to grow grapes enough to furnish the grape *juice* that is now getting to be such a staple article all over the great wide world. May God *hasten* the time when fruit juice and milk will take the place of beer and other intoxicants.

THE AVOCADO (OR ALLIGATOR) PEAR.

On pages 170 and 171 of GLEANINGS for Feb. 1, 1915, I gave you quite a little in regard to the above fruit which is making so much of a stir in California and Florida. The tree in California that was valued at \$30,000 is still bearing fruit and buds. From the *Good Health Clinic* I clip the following statement from an address delivered by the Governor of New York.

Flynn tells us that we would live forever if we ate the avocado (alligator pear) every day, because it gives us meat, vegetable, and fruit combined; but that is rather begging the question, because there are not enough raised to supply one person in one thousand, and in the Northland they retail for \$6 to \$8 a dozen. There would be just as much sense in the Esquimaux telling us that we should all live upon whale's blubber.

From the quantity of fruit that had set on the trees when I left Florida toward the first of May, it looked to me as if the price would soon come down from what it had been. I hardly think our trees are large enough to bear fruit this year. The trees belonging to our neighbors, close by us, and across the way, were literally loaded down with fruit. Everybody seems to praise it. It is very likely, however, as suggested in the above, that nature provides, or at least provides within easy reach, the food that is particularly beneficial in any particular climate. I have often thought of this, when partaking of our delicious grape fruit that grows in such abundance right before the open door, that seems to be provided particularly to quench the thirst and give health and enjoyment to the people who live where frost and snow are almost entirely unknown.

SWEET CLOVER TAINING MILK AND BUTTER.

We clip the following from the *Country Gentleman*:

SWEET CLOVER AND MILK.

We are learning new things about new and old crops all the time. Many growers claim that sweet-clover pasture will not affect the flavor of milk, but the subscriber who wrote the following letter knows that it did do it in at least one case:

"A year ago we planted a patch to sweet clover. As our winter oats froze out it was our earliest pasture, so we put our cow in this field. The clover tainted the milk, however, and I could not sell the surplus butter, as the customers did not like the sweet-clover flavor. We now have the cow in the woods pasture, and there is no unpleasant odor or taste to her milk or the butter.

"We put her on the sweet-clover pasture in the morning and kept her in the oats-field at night, and there was a vast difference in the taste of the morning and evening milk; now the taste is the same at both milkings.

"We will plant sweet clover again this fall, but not as a dairy feed."

The above is indeed a surprise to us. In all the reports we have had for years past

in regard to sweet clover for milch cows we cannot now recall ever receiving a word in regard to its tainting milk, and we must think this report is an exception to the general rule; and we are inclined to think, also, that there is a possibility that this sweet clover is peculiar, or that there is some other explanation for it. Will our readers report if they have ever had the same experience? We ask this because we have had so many reports favoring sweet-clover hay and sweet-clover pasture for both milk and butter.

DANDELIONS AS A HONEY-PLANT.

You say dandelion is a great honey-plant. I have been looking it over of late years, but have seen but one bee on it. You must have a different kind of plant, or a different bee. Most of the bees about here are blacks or hybrids, and they do not bother dandelion at all.

I like your journal. I too am getting to be an old man. I am in my 70th year, and I have never been under the influence of strong drink, and I do not know what lager beer tastes like. I think any man that gets drunk has nobody but himself to blame. The saloon-keeper has no power to compel any one to drink his stuff.

I am a great-grandson of a private in the Revolutionary War. His name was Henry Jamison.

LEMUEL B. JAMISON.

Englishtown, N. J., May 8.

My good friend, dandelion, like almost all other sources of honey, has its off and on years; and I suppose locality has much to do with it. With us here, as it is about the first thing that the bees can work on most seasons, there is a great roar over the fields of dandelion. Sometimes the bees get only a little honey as well as pollen.

You are right, perhaps, in saying that "saloons have no power to compel," etc.; but the fact that they do by some means get hold of our boys and lead them astray is reason enough why they should be done away with.

We are glad to hear from a descendant of one of the heroes of the Revolutionary War.

ANARCHY, RIGHT HERE IN OUR UNITED STATES OF AMERICA.

We clip the following from the *Youths' Instructor*:

During 1915 there were in this country sixty-nine lynchings, seventeen more than in 1914. In four cases it was later proved that the victims were innocent. Three of those lynched last year were women. Leading universities of the Southern states are starting a movement to put an end to this lawlessness, which is a disgrace to the country.

God hasten the time when law and order shall rule, and not crazy mobs that defy law.

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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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A No. 1 clover in 120-lb. cases at 8 cts.

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In new 60-lb. cans, clover honey, 8 cts.; buckwheat, 7. G. H. ADAMS, box 184, Schenectady, N.Y.

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Buckwheat honey, comb and extracted; also clover extracted, 60-lb. cans.

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ARTHUR NORRBERG, Spring Valley, Ill.

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JOE C. WEAVER, Cochrane, Ala.

Clover honey (1916 crop) of very heavy body—a fancy article. Write for prices and a 5-cent sample.

M. W. HARRINGTON, Williamsburg, Iowa.

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FOR SALE.—Clover honey of finest quality in new 60-lb. cans at $8\frac{1}{2}$ cts. per lb. Also fancy and No. 1 clover comb honey, $4\frac{1}{4}$ x $1\frac{1}{2}$ sections.

MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Fancy white-clover honey; extracted, 8 cts. by the case of 120 lbs. Also same in 2-lb. friction-top cans, 24 cans to the case, 10 cts. f. o. b. Falmouth, Ky.

VIRGIL WEAVER.

FOR SALE.—Extra-quality white-clover honey, $8\frac{1}{2}$ cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone \$1.00. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW Co., Clarion, Mich.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts.; which may be applied on any order sent for honey. Write for price on large lots.

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Rt. 2, Lake City, Mich.

FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb. net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case. H. G. QUIRIN, Bellevue, O.

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FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts., prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordlonville, La.

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EARL L. BAKER, Star City, Mich.

FOR SALE.—500 Page Kenkle comb-honey supers, $4\frac{1}{4} \times 4\frac{1}{4} \times 1$, $\frac{7}{8}$, nailed and painted with holders, springs, and separators, used 3 seasons, in perfect condition, at 35c each; lots of 100 at 30 cts.
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E. E. VROOMAN & Co., 834 F., Washington, D. C.

REAL ESTATE

FOR SALE.—A nice twenty-acre farm with 100 swarms of bees, and large ginseng-beds; also 4800 pounds of extra-nice raspberry-clover honey.
L. FRANCISCO, Mosinee, Wis.

Improved irrigated alfalfa ranch. Ideal climate, pleasant altitude, no better location for apiary. Thousands of acres near. Snap at \$10,000. Quick sale. C-14, care of *Gleanings*.

TENNEY RIDGE COLONY.—Acre homes among the big pines of Florida. Daily mail and auto service between Arcadia and Fort Myers. Lots 152 x 297 ft., \$50.00. Address E. PERRY,
Sec. Tenney Ridge Colony, Arcadia, Florida.

VIRGINIA, North Carolina, West Virginia, and Ohio farms at \$15.00 per acre and up; offer big value for the price. Best climate, markets, schools, and transportation. Good land and neighbors. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade, LaRoque, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.
C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 R'y Exchange, Chicago.

FOR SALE.—Four-acre grove. The best of fruit; one and two years' growth; 160 steps from depot; 3 miles east of Tarpon Springs, Fla.; 2 railroads east and west; 1 railroad north. All trains stop. Substantial fence; 2 drive wells; house $18\frac{1}{2} \times 24$ ft, 3 rooms; bee-house, 8 x 28 ft., shingle roof; silica mine near by; makes the best of glass. Good place for bees, chickens, or dairy; \$2000—\$500 down, the rest to suit at 6 per cent. Address
REV. J. G. TETER, 2001 Oak St., Chattanooga, Tenn.
After Dec. 1, Tarpon Springs, Florida.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—Italian queens; untested, 50 cts. each.
E. A. SIMMONS, Greenville, Ala.

Fine three-banded Italian queens. Circular and price list free.
J. L. LEATH, Corinth, Miss.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50.
A. O. HEINZEL, Rt. 3, Lincoln, Ill.

FOR SALE.—Full colonies fine Italian bees at bargain prices.
J. Y. TRIGG, Valliant, Okla.

FOR SALE.—Fifty colonies of bees at Albright, W. Va., on M. & K. R. R. C. F. WELCH, Albright, W. Va.

FOR SALE.—Untested golden Italian queens, 60 cts.; hybrid queens, 25 cts. each.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Choice Italian queens rest of season, 60 cts. each, or six for \$3.00, cash with order.
EDW. A. REDDOUT, Lysander, N. Y.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed.
H. K. TURNER, Rt. 4, Greenville, Ala.

Northern-bred Italian queens of the E. E. Mott strain; untested, 75 cts.; guaranteed, 90 cts. Send for free list.
EARL W. MOTT, Glenwood, Mich.

FOR SALE.—500 colonies of bees; sweet-clover and alfalfa grow in abundance. For particulars address GEM STATE APIARIES, box 67, Rigby, Idaho.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.
EDITH M. PHELPS, Binghamton, N. Y., East End.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50.
NORDLING APIARIES, Button Willow, Kern Co., Cal.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed.
W. W. TALLEY, Rt. 4, Greenville, Ala.

Five hundred dandy leather-banded Italian queens for September, at 50 cts. each. No better. J. H. HAUGHEY, Queen-breeder, Berrien Springs, Mich.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 75 cts.; dozen, \$8.00; no foul brood.
D. T. GASTER, Rt. 2, Randleman, N. C.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5.
WM. S. BARNETT, Barnetts, Va.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Vigorous, prolific Italian queens, \$1; 6, \$5. I am wintering a lot of fine tested queens for early spring delivery. Look for my ad't in April.
A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Southwest Virginia five-banded Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.
HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 338J, Rt. 6, San Jose, Cal.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Goldens and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

My breeder, a daughter of one of Dr. Miller's best queens, is proving superior to any I have been able to procure. Daughters of this queen, untested, 75 cts. each; \$8.00 per dozen. J. I. BANKS, Dowelltown, Tenn.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Queens for queeneing. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

The Stanley Improved Cell-starting Hive and Queen-rearing Outfit, complete, \$5.00. The same with a choice breeder, \$6.00. Warranted Italian queen, 60 cts. each. Tested, \$1.00. Virgin, 25 cts. Choice breeding queens, \$2.25. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

HOLLOPETER's honey-gathering strain of Italians are now at their best. This strain has a record of 100 lbs. more honey per colony than the average colony. Safe arrival by return mail. Untested queens, each, 75 cts.; 10 for \$6.00, 20 for \$10.00. Tested queen, each, \$1.00. 1 lb. bees with queen, \$2.00. We are booking orders now for spring delivery. J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens, add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10; select tested, one, \$1.50; ½ doz., \$8.00; extra select \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long-lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

THE BARGAIN OF THE SEASON.—Listen: *The Beekeepers' Review* for two years would be \$2.00; 10 three-banded Italian untested queens at 50 cts. would be \$5.00; total, \$7.00. Send us only \$5.00 and receive the *Review* for 1916, 1917, mailing you the back numbers for this year, and 10 untested Italian queens direct from our breeders in the South. Prompt delivery. To get this exceptional bargain, address all orders to THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—65 colonies Italian bees, \$250; all in hives used about two years; 8-frame L., wired full sheets; combs enough for 30 or 40 colonies extra. These bees produced 60 lbs. of honey this year; bee-way comb-honey supers for above hives, never used; new Root automatic reversible extractor, storage tank, feeders, queen-excluders; in fact, every thing a beginner would require; every thing good and up to date; honey enough on hives (white clover) to winter bees; no disease. Write if you mean business. M. E. BABE, Rt. 7, Xenia, Ohio.

SITUATIONS WANTED

WANTED.—Position in a beeyard in Porto Rico. FRED E. OSBORNE, Delanson, N. Y. Care of Frank C. Alexander.

Your Honey Crop Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

**Whys and Wherefores
of Fall Spraying**

is the title of a little booklet, giving seven reasons, official and non-official, why it is the best time to spray. This booklet will be sent out by the B. G. Pratt Co., 50 Church St., New York, manufacturers of the well-known "SCALECIDE" at a very early date. If you are not on their mailing list, send them a postal today giving the number of your trees and your dealer's name and you will receive a copy free Address Dept. 6.

60-lb. Honey-Cans

Good second-hand, fit to refill with honey for use again. . . .

For shipment from either Philadelphia or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

The A. I. Root Company

New York Philadelphia Medina, Ohio

**The Eyes, Ears, and
Mouth are Near
Together**

To see birds, hear their music, and taste honey are a happy trio. . . .

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

**Be Efficient in
BEE CULTURE**

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the Outlook. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D.....

Town

State

TRADE NOTES

SECOND-HAND 60-LB. CANS.

Our supply of second-hand cans at New York has been disposed of; but we still have a good supply both at Medina and Philadelphia of choice cans suitable for use again in shipping honey. These we are selling at \$4.00 for 10 cases; \$8.50 for 25 cases; \$30.00 for 100 cases.

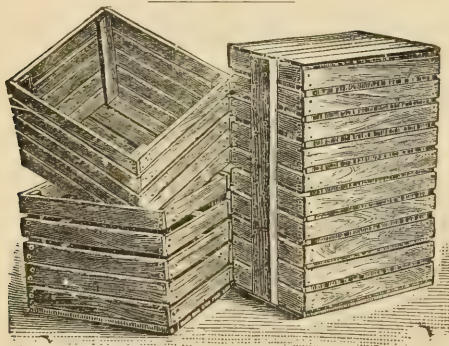
NEW 60-LB. CANS.

We will still furnish, from Medina only, new 60-lb. square cans, 2 in a case, at the prices listed in our catalog—85 cts. per case; \$8.00 for 10 cases; 25 cases or more, at 75 cts. To buy new stock from the factories at prevailing prices we should have to pay 25 per cent more than they cost less than a year ago. If you need any, send us your orders.

HOTBED SASH AND GLASS.

The season for using hotbed sash is approaching. We are prepared as usual with a choice grade of cypress sash which we will continue to furnish at former prices, viz., \$1.00 each, K. D.; \$4.75 for 5, or \$9.00 for 10. The regular size, which is furnished when no other is specified, is 3 1-3 feet wide by 6 feet long, made for four rows of eight-inch glass. Bars are grooved for glass to be slid in end to end. We also furnish them rabbetted for glass to be lapped and set in putty. If you prefer this style be sure to mention it in ordering.

Glass prices are greatly advanced, so that we must ask for 8x10 glass, \$3.50 per box of 90 lights.



BUSHEL BOXES.

We have on hand, ready for immediate shipment, a good stock of these boxes, packed as shown in cut. They are made with oak corner posts and bottom end slats to receive the nails, the remainder of the box being basswood. They are very convenient, and popular for handling potatoes, apples, onions, and other farm crops. They hold a heaped bushel level full, so they can be stacked any height desired. To reduce stock we offer them for a short time at the following special prices:

All slatted bushel boxes, per crate of 14, \$2.25

Slatted bushel boxes, per crate of 12, \$2.10

Galvanized bound boxes, per crate of 12, \$2.75

In lots of 10 crates or more, 5 per cent discount.

The all-slatted is the cheapest, and the most popular style. Two are nailed in each package, and sufficient nails are included for the remainder.

EARLY-ORDER CASH DISCOUNT.

The usual custom of allowing a discount for early cash orders for goods for next season's use is continued this season. The discount begins with 5 per cent for September cash orders instead of 7, which was given in former years. The discount applies to the latest revised prices with the usual exceptions on certain classes of goods. No discount will apply on orders for shipping-cases, cartons, labels, tin and glass honey-packages, bees, queens, paint, bushel-boxes, hotbed sash, seeds, honey, and printed matter.

Where goods named in the list of exceptions form not more than 20 per cent of a general order for hives and other beekeepers' supplies, the discount may be taken on the entire order. The discount is allowed only for payment of cash during the month

of September, whether goods are shipped or not. For payment in October the discount will be 4 per cent; during November, 3 per cent; during December, 2 per cent.

COMB HONEY SHIPMENTS IN WESTERN TERRITORY.

Since the first of September all local or less than carload shipments of comb honey in territory west of Chicago and Mississippi River are rated double first class, making the shipping charges so high as to be almost prohibitive. When we learned some weeks ago that this change in classification had been made we gave notice of it in the editorial columns, suggesting that those interested should write to the chairman of the committee protesting the increase. We are now in receipt of a notice from the chairman of the committee, that, under docket No. 914, the Western Classification Committee will, on Thursday, Oct. 26, take up and consider a proposed change, making second-class rates apply on comb honey in less than carload lots, and fourth class in carloads. Interested parties desiring to appear and present argument will be heard at 3:45 P. M. in the committee conference room, 1836 Transportation Building, Chicago, Ill., on the date named. We plan to be represented, and suggest that concerted action by associations of beekeepers be taken, arranging with some one to represent their interests, to appear. This change, if it can be brought about, will mean thousands of dollars saved to the beekeepers in transportation charges on their product. This change cannot well be made soon enough to be of benefit on shipment this fall; but if we may look with hope for some relief for the future it will encourage some to continue producing comb honey who otherwise would give it up in favor of extracted.

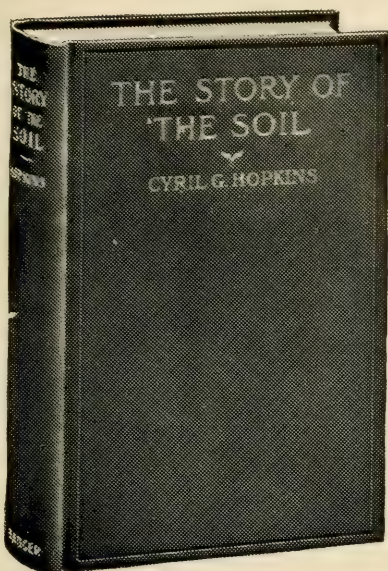
THE A. I. ROOT CO., MEDINA, O.

Special Notices by A. I. Root

THE ANTI-SALOON LEAGUE YEAR BOOK FOR 1916.

I hold in my hands the above book of 310 pages. It gives correct statistics in regard to temperance and the use of intoxicating liquors covering the whole wide world. First an extensive account is given in regard to prohibition in Russia. The statements are from absolutely reliable sources; and after Russia a review is made of every nation in the world, noting both past and present conditions, and giving a birdseye review of the progress of temperance laws and temperance legislation. The above includes South America and American possessions not belonging to the United States. Then a vast array of facts is given in regard to the progress of each separate state of the American Union. Great numbers of wet and dry maps are given in order that one may note the astonishing progress, especially the progress being made at this time from wet to dry. For instance, Florida has only five wet counties containing saloons, and only nine towns or cities not under prohibition. Those of you who have been getting discouraged in regard to the slow progress of temperance had better have this book and look it over. Of course the liquor forces have published a similar book. I think they give it away, and there is scarcely a periodical now published that will accept statements from them, in defense of the liquor-traffic, unless it is a *paid advertisement*. Now, when somebody raises the question as to which is right, the liquor people or this year-book, call his attention to this fact:

The Anti-saloon League Year-book is gotten up by Christian people. It is the work of the churches and schools and colleges, and the physicians and scientific men of our land. Their evident desire is to benefit and uplift, not only our nation, but all the nations of the earth. In contrast with this I hardly need tell you the book put out by the liquor people is solely selfish. It is the inspiration of greed and avarice. They want to prevent their business or "industry," as they call it, from being driven entirely from the face of the earth. As a matter of course you can get their books free of charge; and they have millions of money, or at least they have just now, to push their hellish schemes. The Anti-saloon League tells us that *business men* everywhere have most cheerfully furnished facts and material for the book. The price in paper covers is 25 cents; bound in cloth, 50 cents. Address Anti-saloon League of America, Westerville, Ohio.



A Wonderful Book

This is the judgment of
every thinking man
who has read

“The Story of
the Soil”

By Prof.
Cyril G. Hopkins

It covers the whole field of life on the
farm, soil fertility, and perma-
nent agriculture.

What They Say About It

“Holds the intense interest of the reader.”
—Ohio Farmer.

“The farmers owe Mr. Hopkins a debt of gratitude.”
—Chicago Tribune.

“Worth millions to the farmers of America.”
—Prairie Farmer.

“Ought to be in the hands of every farmer in the world.”
—Farmer and Breeder.

“I enjoyed every word of it. A fascinating novel about the soil.”
—Editor American Agriculturist.

“A wealth of information.”
—Editor Wallace's Farmer.

“The book is destined to do more good and stir more thought among the farmers of this country than any other publication that has yet appeared.”
—Ex-Gov. W. D. Hoard.

Don't Wait Till They are Gone

This book formerly sold for \$1.62 in cloth binding. A few days ago we secured from the publishers the entire remaining stock of this great book in paper binding and can offer it with “Gleanings in Bee Culture” for one year at \$1.15. When this consignment of these books is exhausted we shall be unable to furnish more.

DON'T WAIT. Get in your order today.

Gleanings in Bee Culture, Medina, Ohio

Southern Headquarters for 3-band Italian Queens



Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July		August and later	
Select Tested Queens...	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Tested Queens.....	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Untested Queens.....	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00	

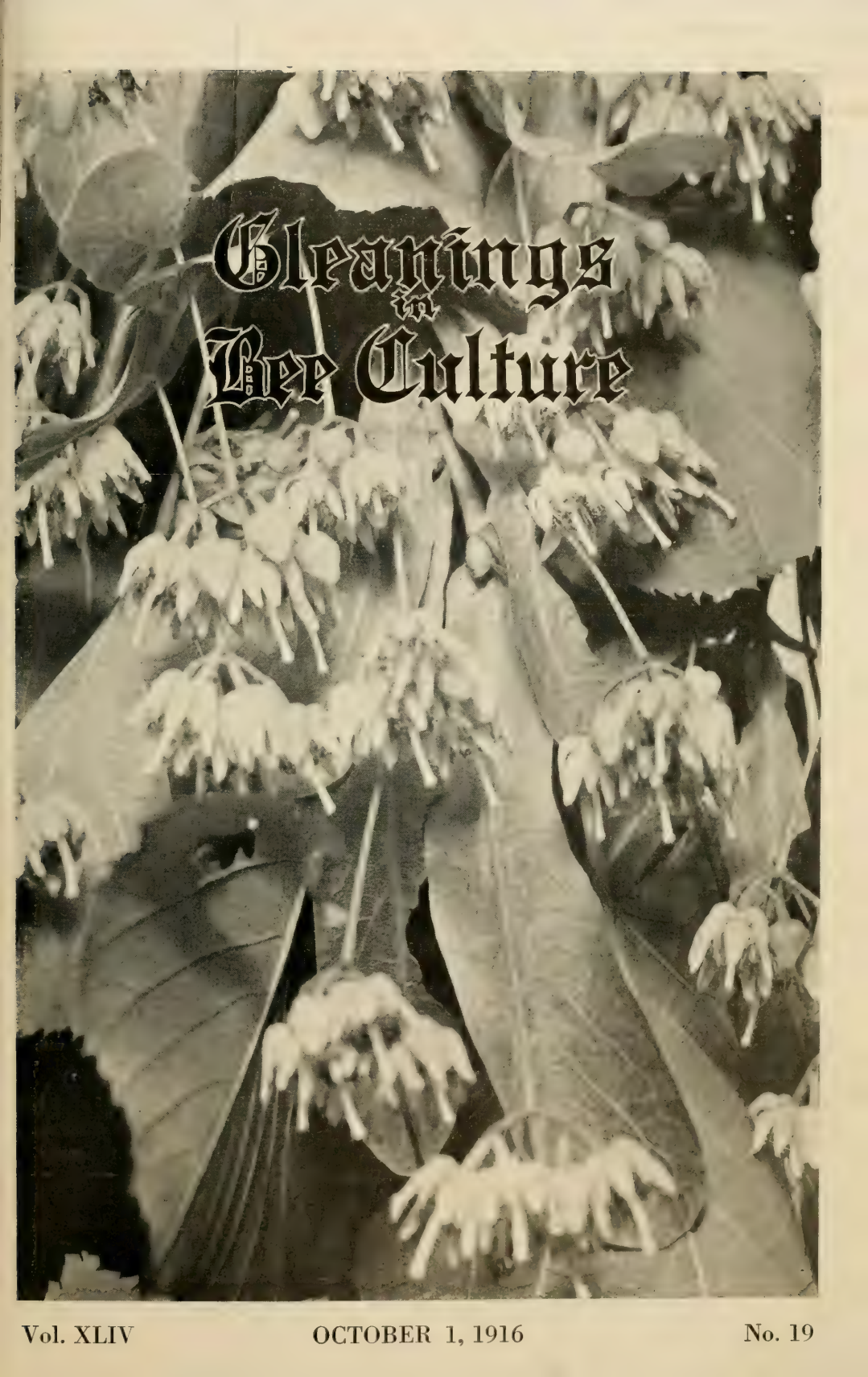
Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00. add price of queen. If any of our untested queens should prove to be mated we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all Isend out

W. D. ACHORD, FITZPATRICK, ALABAMA.

WANTED HONEY

Comb and Extracted
For Our Regular Trade
Last Year's Sales, \$2,936,504

Coyne Brothers
Established 1894
Fruits and Vegetables
119 W. South Water St., Chicago
Reference: Ask Your Banker



Gleanings in Bee Culture

Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 3 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 19 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate
- 13 crates of 50 each, 6¼-inch, 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-pound cases, at \$4.00 per crate.

All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

There are also for the same size section, packed 10 in a crate:

- 10 crates of 10 each, 9½-inch, 2-row at 85 cts. per crate.
- 3 crates of 10 each, 6¼-inch, 2-row, at 85 cts. per crate.
- 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

For the 4¼x1½ beeway section we have:

- 4 crates of 50 each, 15¼-inch, 2-row, for 15 sections, at \$4.50 per crate.
- 6 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.
- 10 crates of 50 each, 11¾-inch, 2-row, for 12 sections, at \$4.00 per crate.
- 6 crates of 10 each, 12-lb. safety cases with cartons at \$1.20 per crate.
- 3 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.
- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

For 24 sections, 4¼x1½ plain:

- 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
- 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

For 12 sections 4x5x1½:

- 15 crates of 50 each 3-row cases, at \$4.00 per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½x5x1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼x1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼x1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½x5x1½ sections at 85 cts. per crate.
- 1 crate, 10 each, 12-lb. cases for 4x5x1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4x5x1½ sections, including safety cartons \$1.20 per crate.

At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼x1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼x1½ sections at \$4.50 per crate.
- 7 crates, 50 each, 12-lb. cases for 3½x5x1½ sections, at \$4.00 per crate.
- 2 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Philadelphia Branch.

- 1 gross ¼-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each ½-lb. square jars with cork, at 90 cts. per case.

At Washington, D. C.

- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 4 dozen ½-lb. Hersher jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hersher jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1...	holding 24 sections, 4 1/4 x 1 3/4, showing 4	10, \$2.00; 100, \$18.00
No. 3...	holding 12 sections, 4 1/4 x 1 3/4, showing 3	10, \$2.00; 100, \$18.00
No. 1 1/2...	holding 24 sections, 4 1/4 x 1 1/2, showing 4	10, \$1.90; 100, \$17.00
No. 6...	holding 24 sections, 3 5/8 x 5 1/4, showing 4	10, \$1.80; 100, \$16.00
No. 8...	holding 24 sections, 4 x 5 1/4, showing 4	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

	with 3-inch glass	with 2-inch glass
No. 11...	Same as No. 1... Nailed, 35c; in flat, 1, 25c; 10, \$2.30; 100, \$21.00	100, \$20.00
No. 13...	Same as No. 3... Nailed, 25c; in flat, 1, 15c; 10, \$1.40; 100, \$12.50	100, \$12.00
No. 11 1/2...	Same as No. 1 1/2... Nailed, 35c; in flat, 1, 25c; 10, \$2.20; 100, \$20.00	100, \$19.00
No. 16...	Same as No. 6... Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00	
No. 18...	Same as No. 8... Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00	

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, combs free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.
COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13 ½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12 ½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.

Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed, in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W" "L. A." "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

LOS ANGELES.—Most of the honey is harvested, and the limited crop has been a great disappointment; even Imperial Valley (the sure-crop country) fell down worse than ever before. The whole of southern California has not produced over twenty-five per cent of a crop, or one-half as much as in 1914 or 1915, which were about fifty per cent seasons. Most of the extracted honey has been sold at high prices, but the demand is falling off and prices range about one-fourth of a cent lower. Prices being paid producers, f. o. b. common shipping point, in carloads: Extracted, white, 6½; light amber, 5½ to 6; amber, 5. Comb ranges from \$2.25 to \$2.75 per case. We were offered a car of No. 1 and fancy white Inyo County comb today at \$2.75 per case.

Los Angeles, Sept. 7. G. L. EMERSON.

ST. LOUIS.—Weather conditions will soon improve the demand for honey. Our market is in good condition for receipts of extra fancy comb honey, as receipts from local growers so far have been very light. Southern extracted is in good demand, with stocks just about ample. We quote comb honey, extra fancy (per case), \$3.25; fancy, \$3.00; No. 1, \$2.75; No. 2, \$2.50; extracted white, per lb., 8½ to 9; light amber, in cans, 6½ to 7; barrels, 6 to 6½; amber, in cans, 6 to 6½; in barrels, 5 to 5½. Clean average yellow beeswax brings 28½.

St. Louis, R. HARTMANN PRODUCE CO.

PHOENIX.—Demand good; in light orders, less than car lots, a shade better; than at the opening of the season. Car lots of amber are somewhat lower—at least ¼ ct. per lb. Extracted honey, white, brings, per lb., 7 cts.; light amber in cans, 5½. Clean average yellow beeswax brings 26 to 27.

Phoenix, Sept. 13. WM. LOSSING.

IDAHO FALLS.—Demand this season exceeds the supply, as the crop was almost a total failure. Practically all of the honey produced has been sold, and we have nothing to offer for market. We quote fancy comb honey at \$3.25; No. 1, \$3.00; No. 2, \$2.75. Extracted white brings 7½ to 10.

IDAHO HONEY-PRODUCERS' ASSOCIATION.

Idaho Falls, Sept. 25.

CHICAGO.—The supply is heavy, but the quality is of the best where it has been properly ripened. Dealers are expected to sell more than the usual quantities, as the flavor is of the kind that asks for the second helping. We quote extra fancy comb honey, per case, 16 cts. in sealed cartons; fancy, 15, cartons or plain; No. 1, 14; No. 2, 12 to 13. White extracted, per lb., 7 to 8; light amber, in cans, 6 to 7; barrels, 6 to 6½; amber, in cans, 5 to 6; in barrels, 5 to 5½. Clean average yellow beeswax brings 30 to 32.

Chicago, Sept. 16. R. A. BURNETT & Co.

ALBANY.—Increased demand for honey as soon as the weather is cooler. Receipts are light, more on account of beekeepers delaying getting ready than lack of honey. Honey-producers make mistake in not sending their honey to market as early as possible for best prices. Extra fancy comb, per case, 16; fancy, 15; No. 1, 14 to 15; No. 2, 13. White extracted honey, 8½ to 9; light amber, in cans, 7½ to 8; amber, in cans, 7½. Clean average yellow beeswax brings 32 cts. per lb.

Albany, Sept. 20. H. R. WRIGHT.

KANSAS CITY.—Honey demand is slow; offerings in car lots are increasing. We quote extra fancy comb honey, per case, \$3.00 to \$3.25; No. 1, \$2.75. White extracted honey brings 8½ in jobbing way; light amber, in cans, 7 to 8; amber, in cans, 7. Clean average yellow beeswax brings 25 cts.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 20.

INDIANAPOLIS.—The demand for both extracted and comb is not as good as it should be for this time of the season. Very little honey has reached us so far, and what has is not of extra-good quality. However, we are quite sure there will be a heavy demand for glass goods next month. No. 1 comb brings \$4.00 per case; No. 2, \$3.50 and \$3.60. White extracted brings 10 to 11.

Indianapolis, Ind.

WALTER S. POWDER.

CINCINNATI.—The demand for comb honey is not as good as it was last season. We are selling No. 1 comb honey, 24 sections to the case, at \$3.75 per case; lower grades are not wanted at any price. White-clover extracted honey in 60-lb. cans, 7½ to 9; amber extracted in barrels, 6½ to 7½. The above are our selling prices, and we buy at less than the above prices. We are paying 28 cts. per lb. for choice bright yellow beeswax.

Cincinnati, Sept. 16. THE FRED W. MUTH CO.

CLEVELAND.—There is no special change in our market since our last quotations. The supply is very limited, but is fully equal to the demand, which is extremely light thus far. We quote fancy comb honey, \$3.85 to \$4.00 per case; No. 1, none in market.

C. CHANDLER'S SONS.

Cleveland, Sept. 18.

PORTLAND.—Reports in general are of a good honey crop, far above the average, A1 quality, with mountain districts still to be reckoned with. No. 1 is selling at 20 cts. per section; 2 for 35 cts., retail; wholesaling at about \$3.00 per case of 24 lbs.

Portland, Sept. 19.

PORTLAND SEED CO.

PITTSBURGH.—Demand not as yet opened up. Moving out slowly. We quote comb honey, extra fancy, per case, \$4.25; fancy, \$4.00; No. 1, \$3.75; No. 2, \$3.00 to \$3.25.

Pittsburgh, Sept. 26.

W. E. OSBORN CO.

MONTREAL.—Clover crop this year was up to the average; quality very good. Buckwheat crop is late, and below the average in quantity. We quote extra fancy comb honey, 16; fancy, 15; No. 1, 14 No. 2, 12. White extracted honey brings 11; light amber, in cans, 10; in barrels, 9½; amber, in cans, 9; in barrels, 8½.

Montreal, Sept. 20

GUNN, LANGLOIS & Co.

HAMILTON.—Honey is a good crop, quality fine. We quote comb honey, extra fancy, per case, \$2.35 per dozen; fancy, \$2.25; No. 1, \$2.00; white extracted, per lb., 12, in 60-lb. cans; light amber, in cans, 1½.

MACNAB ST. BRANCH, F. W. FEARMAN CO., Ltd.
Hamilton, Ont., Sept. 20.

TORONTO.—The honey crop in Ontario, Canada, was of good quality, and abundant; and, owing to the scarcity of fruits, it is expected that good prices for honey will obtain. We quote white extracted, 60-lb. tins, at 12½.

Toronto, Sept. 16.

ELY-BLAIN, Ltd.

MATANZAS.—Amber honey in barrels and cans, 46 cts. per gallon.

Matanzas, Cuba, Sept. 20.

ADOLFO MARZOL.

MEDINA.—We have had an active demand for comb as well as extracted honey the past month, as is usually the case in September. Offerings of eastern honey are much larger than usual, and average prices slightly lower than last year. Western prices are variable, due to crop conditions. Old stock (1915) comb honey seems to be nearly all cleared up. Offers were received from Ohio producers today on first-quality white-clover extracted at 7½ cts. f. o. b. shipping-point. Others are holding at 7½ to 8. Comb is being offered us at \$3.00 per case for fancy white; No. 1 at \$2.75 delivered at Medina.

Medina, Sept. 28.

THE A. I. ROOT CO.

Gleanings in Bee Culture

E. R. ROOT A. I. ROOT H. H. ROOT J. T. CALVERT
 Editor Editor Home Dept. Managing Editor Business Mgr.
 Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Weslev
 Foster, J. L. Byer, P. C. Chadwick, E. G. Baldwin, Grace Allen.
 \$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; untested, 60 cts.; 12 for \$6.00. Tested, \$2.00; select tested, \$3.50; breeders, \$5.00 to \$10.00. Will replace inferior queens. Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries, Mayhew, Miss.

Special Notices by A. I. Root

THE NATIONAL TEMPERANCE SOCIETY OF NEW YORK.

I feel ashamed to confess that it is only recently my attention has been called to the fact that the National Temperance Society of New York is not only the oldest temperance society but perhaps one of the best equipped of any in the land, or may be in the whole wide world. As it is non-partisan, like the Anti-saloon League, I cannot understand just why the Anti-saloon League has not had more to say in regard to it or why it has not been more closely affiliated with it. Well, this temperance society publishes three bright and beautiful periodicals—first, the National Advocate, now in its 51st year; second, the Youth's Temperance Banner, also in its 51st year—one of the brightest and prettiest little monthlies that I have ever gotten hold of, and The Water Lily, a monthly for children, that is worth its price, and ever so much more, to look at the pictures if nothing else. The price of all three periodicals is ridiculously low. The weekly is only \$1.00 a year; the Youth's Temperance Banner is only 30 cents, and the Water Lily only 15 cents. If you do not subscribe, send at least for sample copies and see if I am not right in thinking them among the very best periodicals for the home—especially a home where there are children.

NOT CERTAIN HE IS GUILTY.
As we go to press we learn by the papers that the colored man mentioned in last issue may not be the guilty party after all. What about mob law and the work of "mob tonic" now?

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED SEMI-MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H. H. Root, Medina, Ohio; Business Manager, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows:

A. I. Root, Medina, Ohio; E. R. Root, Medina, Ohio; H. H. Root, Medina, Ohio; A. L. Boyden, Medina, Ohio; L. W. Boyden, Medina, Ohio; J. T. Calvert, Medina, Ohio; Frank Spellman, Medina, Ohio; H. E. Aylard, Gdn., Medina, Ohio; A. A. Bostwick, Seville, Ohio.

There are no bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities.

(Signed) E. R. Root, Editor.
Sworn to and subscribed before me this 28th day of September, 1916.

(Signed) FRANK SPELLMAN,
Notary Public.
[SEAL]
(My commission expires Feb. 17, 1917.)

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A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier.

ASSETS OVER ONE MILLION DOLLARS

ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.



Fine Yellow Italian Tested Queens only \$1 each, or I will send 3 for \$2. Carload Italian bees at \$3.90 a stand, 8 and 10 Hoffman frames, if sold this fall; 200 stands. Will take \$4.50 next spring.
J. L. FAJEN, Stover, Mo.

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
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- Five and Ten Pound Pails

Four per cent Discount on Goods for Next Year's Use

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

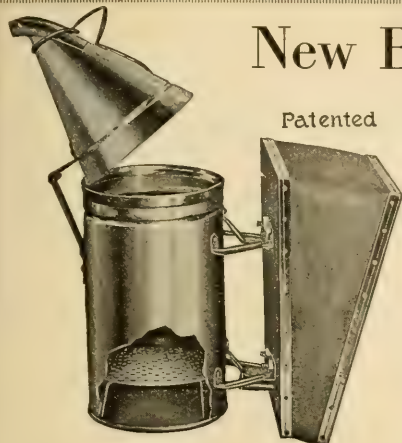
We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue



New Bingham Bee Smoker

Patented

has been on the market nearly forty years, and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

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 Two above sizes in copper, 50 cts. extra.
 Conqueror, 3-inch stove......75
 Little Wonder, 2½-inch stove......50
 Hinged cover on two larger sizes. Postage extra.

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Five-pound friction-top pails, lots of 50 at \$2.75; 100 lots, \$5.20; crates of 203 at \$10.00.

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A. G. WOODMAN COMPANY, Grand Rapids, Michigan

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of Honey and Wax**

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 Montgomery County

BEE SUPPLIES Send your name for new 1916 catalog.
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BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
 on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
 Wanted: Extracted honey

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Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.



Barker Mfg. Co.
 Box 117 David City, Nebr.

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

PATENTS Practice in Patent Office and Courts
 Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building
 WASHINGTON, D. C.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly.

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Based on 20,000 circulation guaranteed.

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Column width, 14½ ems (2¾ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

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Wanted---Honey

Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery---a month or more in some instances. Goods ordered now carry 4 per cent discount during October. Send in your order just as soon as you find out just what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual ones. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found that when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. **PREPARE!** Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest **BEEWARE** on hand at all times, and can fill your orders without delay. . . . **BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans,** and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburt, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor

A. I. Root, Editor Home Department

H. H. Root, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

OCTOBER 1, 1916

NO. 19

EDITORIAL

DON'T fail to read honey-market quotations this issue, page 893.

THE beautiful picture of basswood on our cover for this issue is the work of Dr. E. F. Bigelow.

Wrapping Hives in Newspapers for Winter

THIS practice will do very well where the climate is not severe. The plan spoken of by J. A. Allard, on page 936, will answer some winters; but it should not be relied on. A super with packing on top is quite important; but better by far have packing on four sides as well as top.

Net-weight Law Not Effective in Iowa

THE pure-food commissioner of Iowa has explained to our representative that the Iowa law, as it now stands, does not make it necessary to mark the minimum or net weight on sections mentioned by Mr. Pellett on page 773. While this may be true, we still feel that it is very important that every Iowa beekeeper mark the minimum weights on his sections as has been explained in these columns.

Italians Less Inclined to Swarm than Blacks

MR. J. L. BYER, in his department in this issue, exactly voices our opinions and experiences in opposition to Mr. Allen Latham when he says Italians, in the production of extracted honey, are much less inclined to swarm than Caucasians and blacks; and why Mr. Latham finds the reverse to be true he is not able to understand. We shall have to charge up the difference to locality, for

Mr. Latham is a good beekeeper and a careful observer.

Two-colony Winter Cases

THERE is a good deal in favor of a double winter case as described by Mr. Wiggins in this issue, page 916. The expense of housing a colony of bees, however, is necessarily a little more than where four hives are put in a case. It is a question whether the extra expense fully compensates for the disadvantage.

Sealed Covers vs. Absorbents

MR. W. S. WIGGINS, in this issue, page 916, wishes to know why we advocate sealed covers in place of absorbents. We advocate it only for this locality; if Mr. Wiggins will turn to our book, the A B C and X Y Z of Bee Culture, he will see we distinctly state that the matter has to be determined by local conditions.

A Division-board when it is Too Much of a Good Thing

THE average beekeeper, when he gets a hive with a full complement of frames and division-board, seems to have the impression that the division-board should be left in the hive. Ordinarily the division-board should not be used except when there is less than the full number of frames. We therefore agree with Mr. Tarlton-Raymont on this point on page 920 of this issue.

Mid-winter Breeding

IT will be remembered that some years ago we were successful in building up some weak colonies in one of our bee-cellars by feeding candy during January and February. Ordinarily the practice is not to be recommended; but our colonies were short of stores in one of the yards, and we were

compelled to feed. They were not only short but quite weak. The candy feeding in the spring resulted in some fine booming colonies. We succeeded that winter but we did not succeed another winter. Taking it all in all, we quite agree with our correspondent J. E. Hand in what he says in this issue on page 915.

Easy Way of Selling Honey

LAST winter we had a visit from G. W. Bell, of Bell's Landing, Pa. Mr. Bell has a unique method of disposing of a part of his crop without any effort. He lives on the New York Central Railroad, and there are six passenger trains a day, besides a number of freight trains. Of the twelve conductors on the passenger trains there is only one who does not buy honey. The brakemen also buy considerable, as do also some of the crew of the freight trains.

The trainmen first started buying honey by seeing shipments of his honey, and so they gradually began buying, taking more and more until he disposes of about 1000 pounds of comb honey a year in this way with absolutely no effort on his part.

Mr. Bell produces comb honey principally, altho he does considerable extracting as well. He has a rack for holding sections, and he extracts all the honey from the unfinished sections, and uses the combs for baits the next season.

A Honey-Advertising Campaign

THE A. I. Root Company's full-page honey advertisement in the *Ladies' Home Journal* and *Good Housekeeping*, reaching five million readers, is apparently having its effect. When all the prospects looked favorable for a big crop of honey in the East, and when it was apparent early in the season that the honey market was on the toboggan slide, going down, down, down, an aggressive movement was decided on. The campaign featured the advertising of honey as a food, and, of course, the Airline brand in particular.

The October *Ladies' Home Journal* reached the housewives, the particular buyers of honey, Sept. 20, all over the United States.

Later.—What one of the largest distributors of honey in the West thinks of this is shown by the following:

We have just seen the October number of the *Ladies' Home Journal* and have admired the full-page advertisement your firm has in same regarding Airline honey. It is certainly very tastily gotten out and ought to bring

good results. Every beekeeper should appreciate what you are doing to popularize the use of honey in the home.

The Colorado Honey-producers' Ass'n,
F. Rauchfuss, Manager.
Denver, Col., Sept. 22.

The Disappearing Disease in Mrs. Allen's Apiary

IN this issue, page 907, Mrs. Allen describes exactly the symptoms of what was supposed to be the Isle of Wight disease in the western part of Ohio, and which created quite a stir in the newspapers, especially when it was learned that a representative from Great Britain, and two or three representatives from the bee-inspection department of Ohio, were to make an investigation. As our readers now know, nothing very serious was found, and the trouble has entirely disappeared. It seems that Mrs. Allen found exactly the same thing in one of her colonies. At all events, she gives the exact symptoms that we found at Weston. Whatever it was or is, the disappearing disease has disappeared. The same disease that showed itself in Oregon, down the Mississippi Valley, in parts of Texas and Oklahoma, and which threatened to wipe out whole colonies last season, did not appear this year.

Wintering Hives Buried in the Snow

ON page 322 of this issue Mr. John Mack shows his hives almost entirely buried in snow. Notwithstanding the hives were buried from November till March 25, he wintered without loss. But when the climate is such that the weather changes from warm to cold, so the snow thaws enough to cause the water to run into the entrances, and then freeze, there is danger of a severe loss. At outyards where it is practical to get the snow away from the entrances it is best to do so when the weather is changeable. On the other hand, where the weather is mild and there is changeable weather, the snow will not be very deep. Where the climate is cold enough so that it does not warm up all winter, bees can lie buried in the snow without much danger. Like everything else in bee culture, this is a matter of locality.

Diagnosing Colonies by External Indications

WE regard Mr. J. L. Byer, of Markham, Ontario, as one of the best beekeepers on the continent. He started with absolutely nothing, raised a family, and now is one of

the successful producers in Ontario. It was with no little interest that we read his endorsement of our editorial on page 775—especially where he says that that method of diagnosing has been a common practice with him during the past season. We feel sure that many beekeepers are wasting time in digging down into the brood-nest and lifting heavy supers in the busy part of the year, and when it is practically impossible to hire skilled help. A good many, if they only think so, can determine the condition of their colonies, so far as mere room is concerned, in a very short time, and without taking out a single frame.

If one is running for the production of *comb* honey, he may have to pull out some frames to find queen-cells; but in the production of extracted honey he can often keep ahead of the bees, as Mr. Byer explains in this issue, without doing any heavy lifting or pulling out the frames. Of course, a beginner or an ordinary beekeeper could not do this kind of diagnosing.

Honey-crop Conditions and Prices; Market Recovering

At this time we are in possession of definite information showing that the honey crop in the great West is somewhat lighter than usual—so much so that the large crop in the East may not be able to take care of the market demand. At all events, it is apparent that the general market on honey has stiffened. Whether it will go higher than present quotations, as shown by our Honey Column, we are not able to say. Apparently all of last year's comb honey has been cleaned up, and the demand for both comb and extracted at this writing is brisk.

The rising prices on other food commodities and the fact that the total amount of honey produced in the United States, including the East as well as the West, is possibly no larger than usual, will have a decided effect in making the market firm, altho it is very doubtful if it will reach the quotations of last year. About the time beekeepers begin to dump their comb and extracted honey in the big marketing centers (and that will be from the first to the middle of November), prices will probably ease up. This is strictly in accordance with all past experience. If possible, producers should get their crops on the market earlier before the usual congestion.

A careful survey of the government weather maps (which we are getting daily) shows that the drouth of late summer has probably been broken in most clover local-

ities. Some reports already in show that clover is recovering nicely. On the other hand, our Canadian correspondent, Mr. Byer, refers to the drouth in Ontario as being so severe that buckwheat is practically a failure.

Later.—Since the above was written, later quotations printed on page 893 would indicate a more conservative trend in the market than what we have indicated.

Still later.—The following report from Idaho Falls, Ida., dated Sept. 25, has just been received from the Idaho Honey-producers' Association, and gives the honey-supply condition in a section that last year produced an immense amount of comb honey. "Our crop has been practically a total failure this season. What little there was is all sold, and we have nothing to offer for market. There will be no honey in this section until another crop is raised next year."

European Foul Brood being Brought under Control in Colorado

IN this issue our correspondent, Mr. Wesley Foster, tells us that European foul brood is being brought under control in Colorado; and he hopes that in the near future it will be stamped out.

Nearly all beekeepers in Colorado produce comb honey on a commercial scale. Most of them are good beekeepers—men who are posted in regard to the latest developments concerning this disease. Italian queens of resistant strains are being introduced. The dequeening and requeening treatment is being employed without the destruction of combs with good results.

The Colorado beekeepers are right in line with the very best practices now in vogue with respect to the European disease. It is probable that this disease will never make very much headway in Colorado or among up-to-date beekeepers—those who are posted; but it will eliminate the careless and the ignorant. One who does not take a bee-paper of any kind, and has only a few colonies on the farm, is being forced out of business.

Glassed vs. Cartoned Comb Honey

SINCE the net-weight provisions of the national pure-food law went into effect, sections of comb honey with glass panels have almost entirely disappeared from the market. Formerly the glass was sold at the price of the comb honey; and under this order of things the producer could well afford to glass his sections, for he could sell the glass at the price of the honey and make

a big profit; but that day has passed. When Uncle Sam put out the ruling that comb honey would hereafter have to be sold at its actual or minimum net weight, exclusive of its container, sections, carton, or glass, it eliminated the glass and put cartons to the front.

A correspondent from Buffalo writes us that he has about 3000 lbs. of the last year's crop of comb honey, glassed on both sides. He has been trying to find a buyer for it, and he appears to be willing to take any kind of offer. He says it is all New York state comb honey, but apparently nobody wants it. He has been to great expense in putting it up in glass, and now he must sell it, if he sells it at all, at the mere price of the comb exclusive of the weight of the section and glass.

We cautioned our readers against putting up comb honey in glass, at the time the new ruling went into effect; but apparently some of the beekeepers of the state did not see it; or if they did they did not see the point—namely, that glass cannot be sold any more at the price of comb honey.

In this connection it is interesting to observe that cartoned honey is becoming more and more popular. Cartons are inexpensive. They protect the section as well as the comb honey, and practically eliminate broken comb honey during shipment, because they cushion the delicate combs in such a way that they absorb the shocks and jars incident to transportation. Moreover, they are more sanitary. Some cities have already passed ordinances requiring all packages of food to be sealed, away from flies and dust. 'Tis well.

Extension Work in the South; Increased Appropriation for Bee Culture in Washington

THE members of the National Beekeepers' Association will remember that a committee of two, consisting of Mr. Frank C. Pellett, of Iowa, and E. R. Root, of Ohio, were appointed to see what they could do toward securing an additional appropriation for apiculture in the Bureau of Entomology, Washington, D. C. Both Mr. Pellett and Mr. Root appeared before the Agricultural Committee. Altho they did not secure as large an appropriation as they hoped, they did succeed in getting an increase of \$5000. While there was some opposition on the floor of the House, Congressman Leaver, chairman of the committee, and Congressman Anderson, an influential member of the committee, put it thru.

This increase of \$5000 makes a total appropriation for apiculture of \$25,000. As to how the \$5000 increase is to be used will be explained in a letter from Dr. Phillips from the Bureau, which follows:

Mr. E. R. Root:—You may be interested in learning that the present agricultural appropriation bill carries an increase of \$5000 for the work in beekeeping in this Bureau. It is proposed using this fund to inaugurate extension and demonstration work in beekeeping in the southern states, similar to the work done by Mr. E. G. Carr for this Bureau last year in North Carolina. Arrangements have already been completed for the continuance of the work in North Carolina, in co-operation with the North Carolina Department of Agriculture, and Mr. George H. Rea, former inspector of apiaries of Pennsylvania, has gone to Raleigh to begin work. Negotiations are under way for similar work in another southern state, concerning which announcement will be made later. A third man is to be employed to do work of a more general character thruout the South, in co-operation with the Office of Extension Work in the South of this Department. In all cases the men employed are to work in close co-operation with the County Agricultural Agents.

The southern states offer great opportunity for beekeeping, and much interest has been shown in this work. There are no sections of the country where there are more bees, altho many of them receive inadequate care. An interesting fact is that the South now consumes almost all of its own honey, and buys some from other sections of the country. For these and many other reasons, it has seemed best to confine this work for the present to the southern states.

E. F. Phillips, Apiculturist.

Beekeeping in the South, in many portions, is in the box-hive or log-gum stage. While it is true that there are many good beekeepers there—some of the very best in the country—there are thousands and thousands who are keeping bees in the old-fashioned way. The bee-moth kills off a large number of the colonies, and bee disease is just making a start. Extension workers are already in the South, and it is now proposed to send experts to enlighten these extension workers so that they in turn can show these log-gum beekeepers how to keep bees, and at the same time vastly increase the yield per colony.

While the present appropriation for the work is only a drop in the bucket, it will mean a good start. The Southland has wonderful possibilities in the way of honey production; and as soon as its beekeepers are taught modern methods of honey production, the resources of these states will be vastly increased.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



A MISSOURI correspondent asks how late in the season bees will build comb. They will build it as late as they gather any surplus, provided they need it for storing.

PAPER division-boards for introducing queens and uniting, p. 873, seems a variation of the newspaper plan that was born here. The variation is, no doubt, effective; but the plain newspaper plan is no doubt just as effective, and a good bit simpler and easier. Kill the old queen, lay a sheet of newspaper on the top-bars; over this set a hive-body containing the nucleus having the queen, and close bee-tight. That's all; in three, four, or more days you can shift brood-combs from upper to lower story.

MR. EDITOR, it might be a good plan to have a lot of labels printed with the words "Demaree plan," so as to label properly the plan every time it is sent in as something new. Its latest appearance is at the top of page 804, Sept. 1. Briefly, Put in upper story all but one brood, leaving in lower story one brood with queen, and filling vacancies with frames filled with comb or foundation. An excellent plan to prevent swarming, but please let it always have the proper label. [The suggestion is a good one. As the Demaree plan has been spoken of considerably it will be incorporated under the head of "Swarming, to Control," in the next edition of the A B C and X Y Z of Bee Culture.—ED.]



JOHN A. MCKINNON has sent me two queen-cells I would not have supposed possible, and I am forwarding them herewith. The extreme length of one is $\frac{1}{2}$ inch; of the other 9-16. They are sealed, and he says contain larvæ less than 48 hours old, built by a strong three-story colony

fed a quart of syrup daily. I don't think I ever before saw a sealed queen-cell with a larva less than 72 hours old, and the cell was always full length.

P. C. CHADWICK, p. 718, I'm with you and fornenst Wesley Foster. I'm a bit skeptical about there being such a great danger of disease thru surplus sold on the market. I've had some experience in feeding honey stored by colonies having Euro-

pean foul brood, and never knew it to convey the disease. Of course that doesn't prove it never does. I know of two cases of American foul brood treated in this way: The colony was allowed to store a story of sealed combs. In the fall its brood-combs were exchanged for this story of sealed combs. Thus it was left with no honey but that which it had itself stored. Next year no sign of the disease appeared.

H. H. ROOR, even tho you claim the role of the "little dog," the beekeeping fraternity is indebted to you for a valuable contribution to apicultural literature. In nicety of exactness, that report of M. T. Pritchard as to the stages of the development of a young queen, p. 805, is the best of anything I know of on record. Many thanks, Mel. The most difficult thing I found in such experiments was to know within an hour just when the eggs were laid; but I never thought of emptying eggs out of the cells. Of course there will be variations, but under proper conditions for queen-rearing it is likely that Mr. Pritchard's figures may be taken as standard: from the laying of the egg to hatching, an hour or two less than 3 days (which agrees with the orthodox "three days" of many years); time from hatching of egg to sealing, from 5 days to 5 days 3 hours, which agrees with Cowan's 5 days (I have known larvæ in sealed cells so small that the time could hardly have been more than 3 days); and the time from laying of egg to emergence from cell from 15 days lacking $2\frac{1}{2}$ hours to an hour more than 15 days. This last is the most important item. It agrees with observations I made, pleading that, instead of continuing to say "16 days," we should call it "15 days." Fifty-five years ago it was 17 days, then for many years 16 days, and it's time now that we should say—correctly—15 days.

You give my estimate of time from hatching of egg to sealing in direct quotation, "never more than five days." Please play fair, Huber. I made no such positive assertion—didn't know—merely asked the question, "does it ever happen in more than five days?" Replying to your question, "What would these figures have been under less favorable circumstances, cool weather, weaker colony, etc.?" I reply, if it's any comfort to you, that the time might be "six to eight days" or more; but do we want to raise queens under such circumstances?

I'm ready to sic, but hardly see occasion to sic the "big dog."

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Now that we have requeened the rest of our little yard, we have nothing but pure-bred 1916 Italian queens in every hive. We hope in this way to winter well, to have no cross bees to bother our nice, polite neighbors next summer, and to be more nearly prepared to resist foul brood—when it comes; and come it surely will if not wiped out of this neighborhood promptly, for it has only to come down the pike a bit to start playing in our back yard.

I am increasingly aware that I can not handle full-depth supers. Right now, in mid-September, when they are nowhere near full, I come in really over-tired after lifting a few of them off and setting them back on, to get into brood-chambers. Eventually we shall probably be forced into shallow supers, and I don't happen to like them—nearly twice as many frames and bodies to handle, practically double the work getting the equipment put together, and a whole lot more expense. But—not much more than half the weight.

Tennessee farmers are adding every year to the acreage put into crimson clover, as well as sweet clover—a fact that rejoices the heart of the beemen as well as the farmers themselves. In a letter written this spring, Mr. Ben G. Davis says of Maury County, "Before the farmers began to use crimson clover here, we had a dearth of nectar from apple bloom till white clover. Now this is filled in nicely, as we have hundreds of acres of crimson clover all around us. We have also one neighbor who put in 25 acres of sweet clover this spring, another 20, and still another 5, so in a few years we hope for a midsummer flow, as I feel sure more of them will go into it when they find how fine a soil-builder it really is." Incidentally, those great fields of crimson clover in full bloom are wondrously beautiful.

Interesting indeed is the article, page 447, June 1, "The Changes which Occur in the Egg," by Dr. James A. Nelson. In the constant presence of such marvels as described therein, it would seem impossible for any beekeeper to lapse into the Peter Bell attitude of mind. Rather let us realize, with Dr. Nelson, that the "real riddle of development still remains unanswered," and

feel the same awe and wonder and reverence in our contemplation of a bee-egg in the waxen cell that Tennyson and the scientist who quoted him in the classroom felt toward the "flower in the crannied wall."

Referring to painting hives, I notice that Mr. Miles, page 475, June 15, says that paint for the first coat on new work should be thinned with pure linseed oil. Our paint-man tells us that for new work on pine the first coat is better thinned with linseed oil and turpentine mixed, 1-3 oil and 2-3 turpentine; for the second coat, reverse the proportion, making it 2-3 oil and 1-3 turpentine; for the third coat, all oil, no turpentine. This heavy proportion of turpentine in the first coat is particularly important on southern pine, he stated, while for northern pine a smaller per cent might be used, the third coat in each case being thinned with the pure linseed oil.

I believe it was the lack of shade that lost us a swarm. Ten days after we had requeened a certain strong colony with a very disagreeable disposition, they cast a swarm. Knowing that the queen, whether the one given them or one of their own rearing, was unclipped, I labored mightily that hot day to hive them. Mr. Allen was in town, four miles away, and standing in the tippest top of a step-ladder, reaching up into space and the bees and a peach-tree, was strenuous work, especially for one taking things a bit easily this summer; but finally I had them more or less inside an unpainted shallow hive, the only one I had, with several drawn combs. I was wise enough that day to give them shade—such a hot little home—but as the improvised shade-board was an essential part of a chicken-house it was removed that evening. In the morning I neglected either to replace it or to provide another; and while I was away from home, out came our swarm and flew to parts unknown, leaving eggs behind. Well, the next time there'll be shade.

The editor asks for reports from those who have tried the Fowls adaptation of the Alexander method of making increase. Both last year and this we tried it in a limited way, and it has worked satisfactorily both seasons, except that, with us, the bees in the original brood-chamber, set off later to the new stand, have not stored any surplus. Of

course last year there was practically no surplus stored here by any colony, but this year things are different. Yet these bees with the old brood and the queen-cell, tho they have gathered some honey, have put it all into the brood-chamber, apparently not being strong enough to go up into the shallow supers. In the case of the old queens, however, left on the old stand with one frame of brood and nine sheets of foundation, things were better. Super work is continuing nicely this year, and there has been no lack of interest in the lower stories, as Mr. Brumfield experienced, page 457, June 1. Both years the foundation was drawn out rapidly, and soon the queens were laying in the new combs.

But Mr. Brumfield departed from Mr. Fowls' method in at least two points. He placed the old brood-chamber immediately above the queen-excluder, whereas Mr. Fowls especially emphasizes the necessity of two or three empty supers between. He also gave the upper story an entrance at the back, which Mr. Fowls does not. These points of difference may not account for the condition of neglect in the lower hive complained of by Mr. Brumfield; but, again, they may have been contributing factors. At any rate, does not swarm control thus practiced become an adaptation of the Fowls method rather than the Fowls method itself?

* * *

One day, about the first of June, we were greatly alarmed at the behavior of one colony. On the alighting-board, and on the grass all around the entrance, there were bees crawling and climbing, most of them apparently unable to fly. At the entrance, a first glance seemed to suggest that the colony was defending itself against robbers; yet there were no robbers in evidence. But every minute or two one or more bees would suddenly attack another and try to force her out, off the alighting-board. The ones so attacked always resisted, drawing back toward the hive, often into it and quite out of sight. Out they would ultimately be dragged, however, and it was a sorry spectacle indeed to see them all struggling, and finally dying there on the grass. The next day there was still a little of this same behavior, tho much less, and soon it had disappeared entirely. Nothing similar showed up in any other colony. I couldn't see anything peculiar in the appearance of the unfortunate bees, unless it was that so many of them had their tongues out! That seems comical, doesn't it? But there they were, tho I don't claim to have been a particularly close observer. This colony hasn't stored

much since then, but neither have the others, so we attribute that fact to the weather. There was nothing queer or different (that we noticed) in the interior of the hive when it was opened a few days later.

* * *

FOR BEGINNERS.

Better look over your hives once more this month. Be sure that no colony is queenless. Then see that each one has ample stores to get thru the winter, twenty-five or thirty pounds per hive. If you find some of them short, and have no extra honey to give them, make a syrup of two parts sugar to one part boiling water. Stir till the sugar is thoroly dissolved. You probably haven't any regular feeders. Just put an empty super on the hive to be fed; pour the syrup into an ordinary pan; place chips or tiny bits of wood on top for floaters for the bees to feed from; set the pan on the top-bars of the frames, and close the super. It is better to do this toward evening, as there is less chance of starting robbing. It is a good thing too to feed it warm. Count on giving them a pound, or nearly a pound, of sugar so prepared, for each pound of stores needed.

If you winter on summer stands you will soon be contracting the entrances; and if mice are troublesome in your neighborhood, you might put a strip of coarse wire cloth across the entrance also; about three wires to the inch is good. This will keep out mice, yet allow the bees to pass thru easily.

* * *

Evening.

Gently down the evening drift the quiet
brown and amber;

Slowly thru the meadow trails the dusk
on drowsy feet;

Softly from the fallen fence where honey-
suckles clamber

Steals a twilight witchery of dewiness
and sweet.

Wonderment and yearning irresistibly en-
fold us,

Pausing where the shining rows of hives
beneath the trees

Murmur so and murmur. Ah! what secrets
they have told us,

Secrets of the questing and the homing
of the bees.

Living out the miracle, questing on and
questing,

Drinking of the beauty of some distant,
dim desire,

Homing then at evening to the silence and
the resting—

Heart of mine, O heart of mine, what
more does life require?

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



The severe drouth that started July 1 is still prevailing in many parts of Ontario at this date, Sept. 14. True, we have had a few light showers lately, but no rain to soak the ground, and, as a result, clover will be scarce in many parts of the province next year. No doubt some localities have been blessed with more rain than we have had here in York Co. as well as in the north part of Simcoe Co., where we have one apiary; but generally speaking it can be safely assumed that, in contrast to the great clover season of 1916, 1917 will be a lean year in that respect.

Page 362, May 1, Allen Latham uses a phrase that is hard for me to understand. "Italians will swarm where the blacks work contentedly" is what I have reference to. Personally I have never been a booster of the Italians, as many know; for altho I have had a lot of fine stock of this race, yet rarely do we have the uniformly populous colonies as when we had more of our favorites, the Carniolans. I have had lots of what would be called "blacks" too, I suppose; and if there is anything I have praised the Italians for above other things it is that they so rarely swarm when producing extracted honey, as compared with the Carniolans or black bees. I gave up trying to solve the question why Allen Latham finds just the reverse to be true in his case, and once more we shall have to call to our help that old and much abused word "locality."

RESULT OF THE HARVEST NOW KNOWN.

At this date full results of the season are now known to all. The crop has been above the average for a white-honey yield, practically all of the surplus coming from clover. Basswood seems to have been a failure all over the Province and in Quebec as well, by what I have been able to learn. The demand has been exceptionally keen, and prices have been fair. Of course, as usual in a good season, some beekeepers got nervous and sacrificed their crop, and wholesalers were ready to pick up such consignments. Personally, all our honey was sold in early September, the local demand this year taking thousands where hundreds filled the orders last year.

Owing to continued drouth, buckwheat is almost a total failure in most sections. To

show what one good rain will do I might say that of the four yards here in York Co. only one stored any buckwheat to amount to anything—about 40 pounds per colony. That yard had a good rain during buckwheat bloom. At home, just 7 miles away from this yard, no rain fell, and no buckwheat honey was stored.

NO FEAR FROM BUCKWHEAT HONEY.

Mr. A. T. Brown, in September *Beekeeper*, says of buckwheat stores for winter, that they are "unsuitable as a food for bees," and to back up this sweeping assertion he stated that in the fall of 1914 he extracted his buckwheat honey and fed it back to the bees, and, as a result, lost 37.5 per cent of his apiary. One swallow does not make a summer, and I imagine I see many old-time beekeepers in the buckwheat regions smile.

Some of the best wintering we have ever had has been on buckwheat stores; and if the crop is gathered during hot weather in August, and no honey-dew is gathered along with it, buckwheat honey is fine for wintering. Mr. Brown extracted the honey and fed it back — a bad practice, generally speaking, as there is risk of spreading brood diseases unless honey is boiled, and then the bees would surely die. If fed as it comes from the extractor, as a rule much of it would granulate in the comb, and bad wintering would follow. While I have done little feeding of honey in the fall, whenever such work was done the honey was diluted with warm water to the proportion of two parts of honey to one of water.

While I prefer good clover honey or sugar syrup from best granulated sugar to any other kind of winter stores, unquestionably I would not worry if I knew all colonies had full combs of well-ripened buckwheat honey. This year the bees go into winter quarters with the most clover honey in the brood-nests that we have ever experienced; so, all other things being normal, good wintering may be looked for.

ONE TIME WHEN DRAWN COMBS ARE INDISPENSABLE.

Often the question is asked as to what drawn combs are worth. This year I have been figuring that their value is hard to reckon under certain conditions. On Monday, July 3, I was suddenly taken ill, and for six days I could hardly crawl around—

in fact, the doctor said I should go to bed. As I was all alone, my son having gone to the north yard where swarming was bad, with four yards of bees to look after right in the rush of the honey-flow, surely things looked rather blue. Two yards are four miles from home, and one eight miles away; but with the help of the auto, distance did not count much. I could not even lift up full supers to place an empty one underneath, so I simply piled on the empty supers as needed in so far as I was able to do so. Combs that have not been used since 1913 were called into use, and today the hives are piled higher than my head, in many cases. Swarming was headed off in most cases so far, but I suppose many will soon go to pieces in spite of all I can do. I am getting back to health again; but a week's knock-out right in the middle of the flow makes quite a handicap to overcome.

But the question I had in mind was, "How much were all those drawn combs worth to me under the circumstances outlined?" While I do not contend that I shall get as much honey as would have been the case if we had been able to extract sooner, yet what would have happened if I had been short of combs? No doubt the greater part of the colonies would have swarmed and left, for I in my poor health at the time could not think of going thru the hives, let alone do any extracting; and as for getting help, any beekeeper knows the impossibility of getting skilled help in our line. As it is, hardly any colonies have yet swarmed, and there is a nice pile of honey tiered up in the four yards. Actually, I think that each set of drawn combs was this year worth at least \$4.00 or more to me. Am I placing the value too high?

* * *

WEEKLY EXAMINATIONS TOO MUCH FOR ME.

The editorial on page 775, Sept. 1, regarding the matter of diagnosing colonies without lifting out frames or taking off supers every week is interesting to me because that is a common practice with us during the honey season. Some time ago friend Holtermann, in advocating a weekly examination of every colony during the honey season, asked me what I would suggest to do away with this weekly grind (he did not call it by that name), when I stated that, if I had to make an examination of every colony every week I would go out of the business. While I have not the time to tell what I would do, or, rather, would *not* do, I will say that, during the season just passed, I was entirely alone for four weeks

following July 1, and had four yards to look after. At the close of the season I had help to extract, but not a helper was in sight so far as keeping back swarming, putting on supers, etc., was concerned. After careful examination I found that about half a dozen swarms had left the yards. That was easy; and, aside from the fact that it would have been a physical impossibility for me to lift off all supers and examine every colony each week, the work would never have been paid for even if it had been performed. No; I repeat again that, while weekly examinations sound all right, and look well on paper, if one is alone for a season and has a lot of bees to look after, he will soon find that something else must be depended upon to help him out. What that is, will have to be worked out by each one to suit his own locality, peculiar management, etc.

While discussing this question I want to make the bold unorthodox assertion that great large entrances do not materially, if at all, help to keep down swarming. As stated on many previous occasions, by reason of buying bees in all sorts of hives, and running them for a number of years, I have had abundant proof to satisfy myself on this question. Possibly very few beekeepers have less swarming than we do; and when honey is going we generally get our share with the rest, and assuredly large entrances do not contribute to our low average in swarming, as we have very few entrances indeed that would be called *large* by the average beekeeper. This year one large powerful colony was left in a packing-case all summer, and by actual measurement I find their entrance was 2 inches long by $\frac{3}{4}$ deep. Not because of the very small entrance, but in spite of it, I suppose, that colony about headed the yard, stored over 300 pounds of clover honey, and never offered to swarm. The strain of bees had nothing to do with the non-swarming, for last season that same colony in a single-walled hive swarmed, and there were only three or four swarms all told, that season in that apiary. The secret of the colony storing so heavy and not swarming lies in the fact that the bees entered the supers early in the season, and at all times they had abundant super room, over 150 pounds of honey being on the hive at the last extracting.

Before some one calls me to account for backing up the use of such a ridiculously small entrance as I have mentioned, let me say that I admit that it was too small, but at the same time I consider the very large entrance, as advocated by many, to be just as ridiculous in the other extreme.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



A field meet was held in Riverside recently. Those attending report a very successful meeting. Another will be held in Redlands, Oct. 7.

The blue-curl season is now at its height (Sept. 11); and while it is not considered as being a surplus-producing plant, yet there is no wild flora that is more valuable as a stimulating source. In the very late season, after the bees in many localities have been practically idle for several weeks, they are given sufficient stores from the source to encourage late breeding.

A writer concludes that the efficiency of the Italians in keeping down disease lies in the fact that they are better house-keepers. Good house-keepers have always been in demand. The experience of finding out who are the good house-keepers has caused many an hour of regret.

Mr. J. E. Crane, page 722, Aug. 15, advances the theory that the climate of California affects the bees as it does people, giving this as the reason that the bees are able to fly a greater distance here than in Florida. The theory seems to be perfect, but I am a little skeptical as to the realities of the case. However, I am not ready to say that Brother Crane has not advanced the proper idea as to the cause, but do not see exactly how it is to be proved.

When a small boy, and just becoming interested in the bee business, I was not only eager to learn, but I was about as gullible a mortal as could be found. There was an old Kentucky gentleman in the neighborhood who told me many remarkable things about his experiences with bees, one of which was that he once had a colony in a starving condition that he saved by boiling a piece of chicken very tender and slipping it into the hive where the bees had access, and, strange to say, the bees lived thru the winter (I think the chicken had nothing to do with it, however).

Howard L. Rann, a humorist, has recently tackled the bee. Mr. Rann is contributing some funny thoughts to the daily pa-

pers, and, like the great majority of our population, he seems to have very little accurate knowledge of the habits of the bee, and incidentally throws himself in a very ridiculous light by venturing some comic matter on the subject. I quote: "Bees do not believe in equal suffrage. The male bee is not allowed to look or dress different from any other bee, and is the most henpecked individual in existence. It is a sad sight to see a swarm of masculine bees trooping forth to work in the morning, bossed by a queen-bee who probably does not know how to vote the Australian ballot." To the average person this is undoubtedly very witty; but to one who has some knowledge of the habits of the bee, it certainly puts Mr. Rann in a ridiculous light.

WILL THE LOCAL ORDINANCES HOLD?

Some recent decisions by our state courts lead me to the conclusion that it may be a good time for us to ponder over some of our many different county ordinances relative to bees. By the terms of a decision handed down by the third district court of appeals in Sacramento, August 10, there seems to be a case that nearly parallels our county ordinances. The substance of the decision was that the state fish and game laws cannot be circumscribed or otherwise restricted by local enactment. A similar decision was given some months ago relative to the speed laws governing automobiles in municipal limits, in which it was held that the state law was superior to the city ordinances in regulating speed, thus practically annulling all city ordinances on the subject. In the first case it seems that the Board of Supervisors of Humboldt County, acting upon a clause in the county government, making further restrictions on the game laws of the state, had precipitated the matter into the courts where it was held that the state laws were the recognized game laws, thus ignoring the county ordinance.

I have expressed my opinion at various times regarding the probable results if some of these restrictive ordinances should be questioned in the courts. The decisions mentioned above seem to verify my conclusions. There is little doubt that arbitrary and restrictive bee ordinances such as some of our counties possess, and which come under the police powers of the state, would suffer under a decision of the courts.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



THE FALL FLOW.

Bees have gathered some honey in September this year; but the man who has not provided extracting-combs for bees has secured little of it, as comb-honey supers are not the thing for such a slow flow. The quality of winter stores is good, and wintering promises to be good.

THE ALFALFA WEEVIL.

The Government bulletin on the "Control of the Alfalfa Weevil" states that the infested area is widening about ten miles per year. There seems to be no way of preventing the spread of this pest, so we shall all doubtless suffer sooner or later.

The center of infection is in Utah and has extended into Idaho, but has not reached Colorado—that is, it has not been officially reported to have reached Colorado. A western-slope farmer told me he had a piece of alfalfa infested by the weevil; but if so, the authorities had not yet found it out.

BOULDER COUNTY FAIR EXHIBIT.

The Apiary Department of the Boulder County Fair was well taken care of this year. Mr. D. W. Spangler was the able superintendent and Mr. J. C. Aikin, of Loveland, judged the exhibits. Entries were made in nearly all classes. The exhibit of fancy comb honey was the best the writer has seen anywhere. First premium for the best six cases of fancy comb honey was won by Milton Cantonwine, of Longmont, and second premium by A. J. McCarty, of Longmont. Mr. Seph Francis, of Longmont, got first premium for best and largest exhibit of apiary products. A feature of the exhibits was the use of honey in canning and cooking. The educational value of this is not small.

Thursday, September 7, Seph Francis and W. H. Foster, of Boulder, gave live-bee demonstrations before interested crowds.

EUROPEAN FOUL BROOD A RESPECTER OF PERSONS.

European foul brood plays favorites with beekeepers more than does American foul brood. European foul brood is a respecter of persons, and American foul brood is not. If you are an alert, up-to-date beekeeper, keeping all colonies strong, and headed by young queens of resistant stock, you can be reasonably free to laugh at European

foul brood, altho it rages all around you. You will need to be a queen-breeder, and also to be prepared to feed your colonies, should a lull of sufficient importance occur in the flow. It seems no strain of bees is absolutely immune unless you give them a chance, and a good chance too.

It behooves every beekeeper, whether he is ten miles or five hundred from apiaries infected with European foul brood, to secure resistant stock of Italians, and keep young vigorous queens of this stock in his hives. It will pay in honey crops, and be insurance against European foul brood also.

One interesting fact concerning the spread of European foul brood is that the diseased district in Colorado has moved, *so far, only* to the eastward. The area of diseased apiaries has moved eastward three or four miles, and, so far as known, has not spread westward at all. The bees fly in an eastward direction in the spring, as the wild flowers are more profuse on the hills to the east in this locality. The direction of the prevailing wind is eastward in the daytime and westward at night in this diseased locality. What effect may the wind have on the spread of the disease? As the bees are a fair grade of Italians, European foul brood has spread very slowly in the last two years, and it should be possible to prevent its further spread and stamp it out. We shall see what the result will be.

This disease, we think, is being brought under control in Colorado, and it may be possible to prevent its spread to other parts of the state. The infected apiaries are still confined to an area not more than five miles in diameter. The beekeepers have purchased hundreds of queens of golden stock, and are getting results. The majority of the beemen are learning to handle the disease and will be able in the future to secure crops of honey, even tho some disease may be present.

We have no success to report from caging queens. Removing the brood and requeening seems to have good results. Keeping colonies strong and uniting weak ones for this purpose is essential. It is probably not necessary to destroy combs; but those badly infected had better be destroyed. It is much cheaper to practice a few short-cut methods than keep the disease always present, even if it is under control. It is certainly a pleasure to see beekeepers get control of the disease by introducing new stock of queens and improved apiary practices.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



SHIPPING COMB HONEY.

"The season for shipping comb honey is here, and I am lucky enough to have some to ship to a distant market. But how to fix it for safe shipment is something I do not feel competent to do. How is this best done?"

I used to ship my comb honey by canal in my earlier years of shipping to New York, and found this much better than sending by express, as nearly all comb honey was sent in the 70's. Boats on the Erie canal would stop at a place about 15 miles distant and take a few thousand pounds of extra freight on top of their loads of grain if they were notified beforehand. By having the honey there on the arrival of the boat my whole crop would be put on in an hour or so, and I could see that it was carefully handled and put on top of the leveled grain, while the captain would see to its careful handling at its destination.

Next to the boat comes freight. At first sight it would seem that express would be safer than freight, on account of the heavy shocks freight-cars are liable to receive, and it was with much trembling that I loaded my first freight-car. Wool-sacks were filled with straw and put in each end of the car to give a cushioning effect instead of a thump when the cars were coupled. Much to my satisfaction this carload went thru in perfect shape, this giving me great confidence for the future.

Since then I have had some small breakage, but I still adhere to that way of shipment where the canal boat cannot be used from the start to destination.

Much can be done by the beekeeper to avert the matter of broken comb honey. The first step is to produce the article in the best shape by having the combs built solid to all four sides of the section; and to do this to a certainty it is best to use full sheets of very thin section foundation, fastening it in good and true with a good foundation fastener. Comb honey in which the combs are attached only partially to the sides and bottom of the section should be sold in the home market rather than shipped long distances. Then the combs should be built evenly in the sections so that no "fat" or "lean" combs will have to be experimented with to keep the nice cappings from touching each other. The only sure way to secure such combs is to use separators, then the cappings of the honey will not scrape off in shipping.

Care should be used in packing, to see that the honey is all of a thick ripe grade, and all sealed, in perfect condition and strongly built. If there is any unfit to ship long distances, use it at home, put it back in the hive for completion, or dispose of it as "chunk" honey. Don't allow it to go with the long-distance honey, for damaged honey means low prices for all, and the ultimate harm to the market for others. To gain the best results in shipping comb honey it should be well cured; and to gain this end it should be kept in a warm, dry, well-ventilated room for from three to five weeks. The temperature nearest 85 to 90 degrees will do the best curing. Five weeks of such curing will cause any honey in the few unsealed cells that may be next the section to become so thick that it will not run, even tho the section is laid down flat or handled at any angle. When thus ripened it will not get thin enough to run before it reaches the desired destination, even tho the weather while it is in transit be damp, foggy, or rainy. The merchant to whom it is consigned should be instructed to keep the honey on its arrival in such a place as it was during the five weeks previous to shipment, in order that it may reach the consumer in a shape that will lead him to enlarge his purchases of the product as the years go by.

Shipping-crates should be made to hold eight twenty-section cases to insure the most care in handling by freight men. The practice of shipping comb honey in single 20 to 24 section cases, that can be easily thrown about, is not to be tolerated, especially in small or less than carload shipments. By making the crates large enough so that they will require two men to handle them—say those that will hold from 150 to 200 pounds gross weight—such will not be thrown about, but picked up and set down more carefully. If handles are furnished they will be used.

If in addition to the glass that shows the nice comb in the outside cases, the crate is marked with a request to handle with care; placing it crosswise when loaded on a wagon, and lengthwise in the car, the shipper will have little to fear in regard to its arrival at its destination. Say a kind word to the freight agent or the one under him. Give each a section of honey when you pass your shipment on, and it will pay big in dollars and cents, to say nothing of the satisfaction such a course will bring to you.

GENERAL CORRESPONDENCE

SACBROOD MORE DISASTROUS TO COLONIES THAN HAS BEEN GENERALLY SUPPOSED

BY BURTON N. GATES
Associate Professor of Beekeeping, Massachusetts Agricultural College, Amherst.

Beekeepers are inclined to disregard the presence of sacbrood in their colonies. It is often imperfectly understood that this disease may be disastrous in an apiary. If it occurs in even a slight form, it is depleting. Accurate figures of the damage which it can cause are difficult to obtain. Its virulence apparently differs in different seasons, apiaries, and colonies. The strain of bees apparently has much to do with the evident symptoms of the disease. Not infrequently a beekeeper says that his bees are not subject to sacbrood, or that if sacbrood occurs it is soon cleaned out. Occasionally colonies are found in which disease is not readily suppressed, either thru the efforts of the beekeeper or by the bees themselves. Sometimes beekeepers treat or shake to rid the colony of sacbrood, the same as they would a colony diseased with European foul brood or American foul brood. It is not, however, usually necessary to resort to these drastic measures. The introduction of a more vigorous strain of bees—that is, the introduction of a queen of virule type, will usually do away with the disorder.

During the season of 1915 several severe cases of sacbrood came under the observation of the writer, in which the infection was exceptionally pronounced. In fact, a careless glance at the combs suggested the presence of American foul brood. The apiaries in which this infection was found have had sacbrood for some years, varying from time to time in intensity. General observations around Massachusetts indicate that such conditions are not infrequent. With proper measures, however, the disease can be obliterated.

It is not the purpose of this discussion to consider the nature, cause, or treatment of the disorder, but more especially to give a graphic account of extreme cases of sacbrood. For concreteness, three cases are presented.

Case 1, count made by the writer June 24, 1915, Newburyport, Mass. A colony which was obviously badly infected was selected. At random, a block of brood on one of the combs was marked off, 18 cells by 25 cells, making in all a group of 450 cells. By count of these cells, there were 125 which contained either sacbrood scales

or larvæ. There were, besides, a considerable number of empty cells, or cells with eggs among irregularly arranged healthy brood in all stages. Thus about 27+ per cent of the brood was infected with sacbrood.

Case 2, count made by the writer June 24, 1915, Newburyport, Mass. The comb used in Case 1 was reversed, and a block of cells 13 by 45 was marked off, containing 585 cells. The block of cells was selected at random. Of this group of cells 50+ cells were sacbrood or 8+ per cent.

Case 3, count made by the writer June 29, 1915, Rowley, Mass. A typical, bad case of infection was found. From the center of the brood-nest was removed a comb upon which was marked off a group of 800 cells, 40 cells in a row and 20 rows. Counts were made as follows:

Total number of cells.....	800
Number of empty cells or cells with honey	98
Balance { cells of healthy larvae.....	330
{ cells of sacbrood.....	372 702
Per cent of infection, 53.	

The 20 rows of 40 cells each extended from the top to the bottom of the frame, thus affording a complete section of the brood-nest. In order to furnish a more complete comparison the data for each row of cells are tabulated below:

Row	Cells of sacbrood	
1	17	Top of frame.
2	20	
3	14	
4	24	
5	30	
6	21	
7	24	
8	21	
9	18	
10	18	
11	21	
12	29	
13	20	
14	20	
15	15	
16	16	
17	19	
18	8	
19	9	
20	8	Bottom of frame
	372	

Cases 1 and 2 show how the disease apparently varies within a given colony and within a single comb; but the 8-per-cent infection presented, even to the untrained eye, the appearance of marked infection. Thus it is presumable that the majority of colonies which show only a few cells of the disease are of a low-per-cent infection.

It is somewhat surprising, however, to most beekeepers to learn that 30-50 per cent of their developing bees are dying of sacbrood. They realize that the disease is present, but they rely upon the energies of their colonies to clean the disease out, knowing that from time to time apparently this occurs. These figures, which probably typify conditions elsewhere in the country

other than in Massachusetts, should stimulate the beekeepers to select stock which will not tolerate the presence of sacbrood. A 1-per-cent infection should not exist in any colony. To breed from such a colony may mean the perpetuation of the weakness and inclination of this race of bees to the infection.

The writer would be glad to describe to the beekeepers the method of making these counts, if such details are desired. A group of several hundred cells can be accurately compared by simple means within relatively few minutes. It may be that inspectors elsewhere in the country can procure comparative data, and that in the future further information will be available.

WHAT QUEENS SHALL WE BREED FROM? AND SOMETHING ABOUT THE DRONE PROBLEM

BY DR. C. C. MILLER

With all my heart I believe that every beekeeper, beginner or veteran, should make it his constant business to improve his stock. He may get one or more queens as a start, wherever he thinks he can get anything better than the stock he already has, but that's only a beginning. His steady job, for the rest of his life as a beekeeper, is to see that each year his bees shall be at least a little better than they were the year before.

To do this we must keep close tab on each colony, putting down in black and white its performance. Without neglecting the matter of temper and other points, the chief thing to be considered is the amount of honey stored. No guesswork about it; but each time a pound of honey is taken from any colony, put it down. For many a year past I can turn to my record-book and tell you just how many sections each colony gave. A little trouble—yes, but I couldn't get along without it.

Having, then, the standing of each queen, he can rear his young queens from one or more of the best. I do not mean that he shall make a wholesale job of requeening each colony each year. A colony that is doing as well as the average, or better, may well be left to itself, even requeening itself at its own will. But in the usual course it will sometimes happen that a colony will go queenless, and then it is a nice thing to go to a nucleus and get for it a young laying queen of best stock. It will be well, also, to replace with a queen of better stock any queen whose colony falls below the average in its performance.

In deciding what queen or queens shall be used to breed from, two courses are open.

One claims that it is not best to use for a breeder a queen whose colony stores an amount away above the average, such a queen being a sport, or freak, whose royal progeny will vary widely in characteristics; but, instead, breed from stock a little above the average, thus securing more uniform results, and gradually but surely raising the standard. Another claims that, by constantly breeding from that queen whose colony stores the most, the habit of heavy storing will in time become a fixed characteristic.

I don't know which is the better way; but I do know that by breeding constantly from the queens which make the highest scores, freaks, if you so choose to call them, I have very materially increased my average per colony.

You can do the same.

What about drones? One cannot control the mating of a queen; but one can control the rearing of drones in his own apiary, and thus increase the chances a young queen shall have for meeting a drone of best stock. In carrying this out in practice, here is the plan I followed for many a year: I selected half a dozen or so of the queens standing at the head of the list for heavy yields. The very best of these I chose as the one from which to rear virgins; the rest were chosen as drone-breeders; allowed a considerable amount of drone comb; and drones were suppressed in all other colonies in the apiary.

I think most beekeepers would endorse this course. I know that some of the best of them do endorse it. But I am sure it is wrong in principle. To make clear what

I feel sure is the right way. I think I cannot do better than to close by quoting from an article I wrote lately for *The American Bee Journal*, as follows:

"A certain colony in the apiary, in an average season, yields a surplus of 100 pounds, and we call the queen of that colony a 100-pound queen. Of course, it is the workers that do the storing, and a worker of that colony depends for her character, not only upon her mother, but also upon the drone with which her mother mated. In other words, that worker is the daughter of her mother and also of her father, her father being the drone with which her mother mated. While it is true that the worker is the daughter of her mother and of the drone with which her mother mated, it is not true that the drone is the son of his mother and of the drone with which his mother mated. As the drone proceeds from an unimpregnated egg, he is not at all influenced by the drone with which his mother mated. He is the son of his mother alone; or if you insist that he must have a father, then he is the son of his grandfather, the drone with which his grandmother mated. He is of the same blood as his mother was, without any reference to her mating; that is, his blood is the product of the combined blood of his grandmother and the drone with which she mated.

"As his grandmother gets her rating from that combined blood, whether she be a 50-pound queen, a 100-pound queen, or whatever she may be, the drone will have pre-

cisely the same rating as his grandmother on his mother's side. If his grandmother is a 50-pound queen, he is a 50-pound drone. His mother may be a 25-pound queen, a 75-pound, or something else. That doesn't make any difference; he is a 50-pound drone because his grandmother was a 50-pound queen.

"Now let us see how it will work out to have half a dozen of the best queens, using one for rearing virgins and the others for drones. Suppose they are all 150-pound queens. Any one of them is all right for rearing queens, but how about drones? One of them may be the product of a 200-pound queen and a 100-pound drone, and her drones will be all right. Another may be the product of a 100-pound queen and a 200-pound drone, and drones will not answer. Just remember that, in considering the value of a drone, we are not to consider his mother but his grandmother.

"With this view of the case we have the comfort of knowing that the problem of securing the best drones is made immensely simpler and easier. For if all our queens are reared from our best stock, the matter of drones takes care of itself automatically. No matter if a queen has mated with the poorest scrub stock of a neighbor, her drones are just as good as any, for they come from the same grandmother.

"So, rear queens persistently from best stock, and suffer no drone that has not a respectable grandmother."

Marengo, Ill.

MID-WINTER BREEDING

BY J. E. HAND

Occasionally a progressive beekeeper becomes quite enthused about winter breeding in cellars when stimulated by feeding with hard candy. It is well to understand in this connection that a moderate amount of voluntary breeding in winter is a purely normal function; but feeding to stimulate excessive winter breeding in cellars is abnormal, because it is always accompanied by an abnormally high temperature, excessive activity, and excessive consumption of carbonaceous food—a combination that, without frequent cleansing flights and free access to water, is likely to culminate in exhausted vitality, distended abdomens, dysentery, and death. While this calamity may, perhaps, be averted by carrying them out and giving them a mid-winter flight, in my opinion the labor involved is in excess of the advantages gained, aside from the risk incurred.

Winter is a season of rest and comparative inactivity of bees; therefore any condition of abnormality that causes excessive activity of bees in winter should be regarded as a possible and probable calamity. An *experienced beekeeper* can manipulate bees with impunity during a warm spell in winter; but a wise beekeeper will provide ample food and adequate protection in October, and let his bees severely alone during winter and early spring. In my opinion, winter meddling and spring tinkering, erroneously called "stimulation," is not a component principle of a competent method nor a necessary qualification of a thoroly competent beekeeper.

I would not convey the idea that winter breeding is an undesirable function, except in cellar wintering, for it has been ascertained beyond a doubt that a moderate amount of normal voluntary winter breed-

ing may be practiced with impunity outdoors in the latitude of northern Ohio, as a purely normal function without any attention whatever, except that given in October preceding. Here is my recipe for perfect outdoor wintering accompanied with voluntary winter breeding. 1. A 14-frame colony in October; 2. Contract it with a thin-wall eight-frame inner chamber 12 inches deep, on the convertible plan, wherein the hive proper serves as a winter case; 3. Provide adequate internal insulation, 3 inches on sides and 7 on top, with none on the front end; 4. Provide 40 lbs. of honey or sugar syrup.

A colony in this ideal condition in my lo-

cation will not draw together in a light cluster except as suspended in the deep space under the frames, except possibly in zero weather, and will rear sufficient brood to make them stronger in April than in November preceding. The component principles of successful wintering are extreme contraction, adequate insulation, an abundance of bees, and 40 lbs. of stores. The convertible method is a synonym for economy of equipment and efficiency of service.

Birmingham, Ohio.

[Mr. Hand's 14-frame convertible hive is described and illustrated on page 276, April 1.—Ed.]

THE TWO-COLONY WINTER CASE

BY W. S. WIGGINS

I have read a good deal about winter cases for one, two, four, or more colonies, but have come to the conclusion that for me, at least, the two-colony case is the best.

I have always had some objection to the four-colony case in that it necessitates moving the hives to place the bottom of the case in position, and two of the hives have to face in an opposite direction from the others; whereas in my estimation they should all be facing south; moreover, it takes two men to handle such large cases. If all four hives could face the same way or the bees could be moved to the four-colony case in the fall without confusion then I would be in favor of the four-colony case. My

colonies, however, all face south and are packed on the summer stand without moving in any way, with the exception of a few old eight-frame colonies which are packed in long eight-colony cases as shown in one of the pictures.

I have seen colonies winter without any protection whatever, and come thru in good condition. I have seen colonies with a few corn-stalks thrown over them, or with a few boards loosely placed around the hives and packed with straw, come thru in good condition with apparently no greater loss than those wintered in cellars or in carefully built cases. Is it necessary to have our cases built so warm? My two-colony cases



A late summer view of a portion of W. S. Wiggins' apiary at Muir, Mich.



The same apiary in winter quarters, showing the two-colony cases. This also shows three eight-colony cases in which are housed the eight-frame hives.

contain no bottom whatever, and in this way I figure that two of the cases can be built for about the same money that one of the four-hive cases can. There is no disturbance to the bees when the cases are put on in the fall. One man can set them up, place them over the hives, and put in the packing without any help.

The cases are constructed to allow four inches of packing material on the back and two ends, and in front a space equal to the distance the bottom-board extends beyond the hive, which on my hives is only two inches. The cases extend about eight inches above the hive. This space I pack tightly with good straw or leaves, and over all I place the roof, which has a good water-tight covering of composition-paper roofing. These roofs have a two-inch strip all around the sides which come down over the case and prevent the water from working back into the case and wetting the straw. The cases extend about to the ground and the packing goes clear to the ground as tightly as possible, making the case as warm as tho it contained a bottom-board.

I first place a queen-excluding board over

the brood-chamber, then a burlap blanket, then a super filled with planer-shavings, and the hive is ready to pack. I use no sealed covers over the brood-chamber. Old beemen with whom I have talked advise against this. Why do you, Mr. Editor, advise this, and still advocate ventilation, which they certainly do not get with a sealed cover? [See Editorial.—ED.]

It will be noted that the case does not quite touch the ground, and some may wonder how it is held in place. To begin with, a strip is placed over the entrance-boards. I use the wide entrance on the bottom-board for winter, and lay the board flat upon it. This I believe gives ventilation enough, and the board prevents the packing from getting into the entrance. Then I nail two blocks on the inside of the front of the case just high enough so that, when these blocks rest on top of the board over the entrance, the case will not quite touch the ground. Then on the inside of the back I nail another block directly in the middle of the long way of the case and about ten inches from the top. Then I take a two-inch strip, notch it in one end so that it will rest

over the edge of the hive-stand directly between the two hives in back, and cut it to such a length that, when the back of the packing-case is raised and the other end of this stick is placed under the block on the inside of the back of the case, it will make the case about level.

Muir, Mich.



The two-colony cases permit all the hives to face the south.

THE REASONS FOR THE COLORS OF THE FLOWER

BY JOHN H. LOVELL

If you dip a red flower, as a rose, in a weak alkaline solution, as a cup of water to which a little ammonia has been added, it will turn blue; but if you dip it again in a weak acid it will at once recover its original red hue. A blue flower dipped in a weak acid becomes red, but becomes blue again in weak ammonia. In a recent number of the *Literary Digest* there was published an extract describing the color changes of red and blue flowers, and their relation to an acid or alkaline plant sap.

Red and blue flowers owe their colors to a large group of pigments dissolved in the cell-sap, and called collectively anthocyan. Yellow and green pigments are usually in solid granules. The red and blue pigments are believed by chemists to be derived from yellow pigments. If the sap of leaves or flowers is acid, then any anthocyan present is red-colored. There are families and genera which have the sap so strongly acid that, no matter under what conditions they grow, they never produce any blue flowers. There are no blue roses; and who ever saw a blue pink? In the great orchis family, which contains some 6000 species, there is only one blue flower, *Vanda coerulea*, of India.

While red flowers are comparatively rare (for there are only about 257 in all north-eastern America, red coloration is very common in leaves and stems, especially in spring and fall. As to its use, if it has any, there have been many opinions; but the most acceptable is that of Stahl who thinks it aids the plant by absorbing heat. The production of red pigment is increased by three factors—a low temperature, a bright light, and the presence of sugar in the plant tissues. In the Alps the leaves of plants are much oftener red than in the lowlands, because the night temperature is lower. In the intense light of alpine summits white lowland flowers sometimes become red-flowered. But it is to the influence of sugar that the most interest attaches.

A chemist by the name of Overton cultivated an aquatic plant (*Hydrocharis*) in a solution of water and sugar, and in a few days dark-red coloring appeared, especially in the new leaves. Other plants grown in pure water showed no red color. The cut stems of lilies and other land plants in a weak sugar solution soon developed red color; while the leaves of other stems in clear water remained green. He further found that low temperature, but above freezing,

and bright light, promoted the formation of red pigment. In arctic regions Wulff has observed that the leaves of plants are often rich in sugar, and red-colored. Red autumnal leaves are also said to contain more sugar than when they were green. These and many other experiments appear to prove that there is a relationship between anthocyan and sugar.

Since plants which have a rich sugar content have the cell-sap colored with anthocyan, there is certainly no improbability that the nectar secreted by such plants may contain more pigment, or be darker colored, than that secreted by plants with little or no red or blue pigments. That is, there may be a relation between the color of the honey and the amount of anthocyan a plant contains, but it must be admitted that we know very little about the matter. An acid or an alkaline soil has apparently very little effect on floral colors, for both red and blue flowers grow on both kinds of soil. Still, Kerner tells us that in the limestone Alps several flowers are blue or yellow which elsewhere have different colors. There are also other observations, according to which the colors of flowers have been changed by chemicals, as iron or arsenic, in the soil. But however it may be with the color of nectar, its secretion is certainly strongly influenced by soil and climate, or why should alfalfa and many other plants yield freely in one region and not at all in another?

Let us in conclusion briefly consider the effect of an alkaline sap on flower colors. In many flowers the cell-sap is only feebly acid, or neutral, or alkaline; for instance, in the forget-me-not and common borage the sap is at first acid and the flowers open red, but a little later change to blue as the sap becomes alkaline. If the sap is neutral the pigment may be violet-colored, or it may be invisible, which explains why some flowers suddenly lose their color; but in this latter case it may be again restored by the use of an acid. If the sap is alkaline the anthocyan turns blue; or if there is a yellow pigment present it becomes green. Sometimes one part of a flower may have acid and another part alkaline sap. A hyacinth has produced a flower-cluster with blue flowers on one side and red flowers on the other; also flowers with petals partly blue and partly red. A variety of phlox was clear blue in the morning, but gradually changed during the day to a beautiful deep rose. Red and blue cells may occur indiscriminately in the same petal, as in the

sweet-scented violet. Thus the transition from red to blue or from blue to red may often be very easily effected.

The shade of the flower depends upon the density of the coloring matter it contains. The scarlet poppy, tulip, and fire-red canna owe their colors to a mixture of yellow

grains and red cell-sap. The different pigments included under the name anthocyan are closely allied, yet they vary somewhat in composition and hue; and according as they occur alone or mixed they affect the color of flowers. A knowledge of these pigments is important to plant-breeders.

Waldoboro, Me.

HOW TO PREVENT YOUNG QUEENS FROM MISTAKING THEIR OWN ENTRANCES

BY W. D. SELLERS

The first year that I wintered my bees on this ground, the hives faced due east. The result was that many colonies clustered on the southern side, because that side was warmed by the sun's rays. The next year I changed them so that they faced south-east, and now most of the clusters are in

which I expected a virgin queen to issue to mate; and upon going there I would find no queen. I would then look next door, and there she would be lying on the bottom-board dead. So far as I know I did not lose one queen this season in this yard. The hives being 8 ft. apart, and every other one



W. D. Sellers' queen-yard, Lancaster, Pa. The hives are eight feet apart, and every other one is painted yellow.

the center, altho a little toward the front of the hive. It is true that some of the clusters went to the extreme and located on the edges past the last comb. If my piece of ground faced to the south lengthwise I would then face the hives south. I propose to erect a windbreak on the north and north-west side, as this was certainly needed last spring.

It will be noticed that every other hive is white, the others being colored with ocher or yellow. I formerly had all my hives painted one color, and much closer together. I lost many fine queens this way, I am sure, because I had often marked a hive from

a different color, the bees now have a chance at 16 feet to make their goal.

My shop and honey-house faces east. During the middle of the day in the winter the sun shines thru the windows and makes the room comfortable. Facing south would be a better position, as at midday, when the sun is the hottest, it will hit the largest possible part of the shop and leave the smallest part or end to the cold northwest wind. The shop is shaded during the summer. A shop that is in a position to receive the sun's rays in the winter, and that is protected by shade in the summer, is ideal.

Lancaster, Pa.

DIVISION-BOARDS NECESSARY ONLY WHEN WINTERING A NUCLEUS

BY TARLTON-RAYMENT

The recent advocacy of division-boards in connection with the eight and ten frame hives evoked a considerable discussion in GLEANINGS. Some of the writers went so far as to recommend altering the dimensions of the standard bodies to accommodate better the fixtures.

From our point of view this is a remarkable contention, because the only time we can utilize any style of division-board or "dummy" is when packing a weak colony in autumn. Even that contingency is so rarely encountered with the eight-frame hive under our system of management that the total absence of the division-boards would entail but little or no inconvenience. But to suggest varying the hive measurements simply to permit the use of what, in the opinion of many experienced apiarists, is a superfluous piece of wood—oh dear! no—not under any circumstances.

Some seventeen years ago we made our first hive. We, as the merest tyros, had just previously been conducted over a neat little apiary of eight-frame Langstroth hives fitted with beeway sections. Their obvious convenience, together with the snowy capings, made a deep and lasting impression.

At that time division-boards were not in our vocabulary; but we feel pretty certain that the model apiary was certainly not bothered with them. However, returning to our home-made hive, in the intrepid manner of the inexperienced we were convinced that it was altogether wrong to make the brood-frames $9\frac{1}{8}$ inches deep and the honey-sections only $4\frac{1}{4}$.

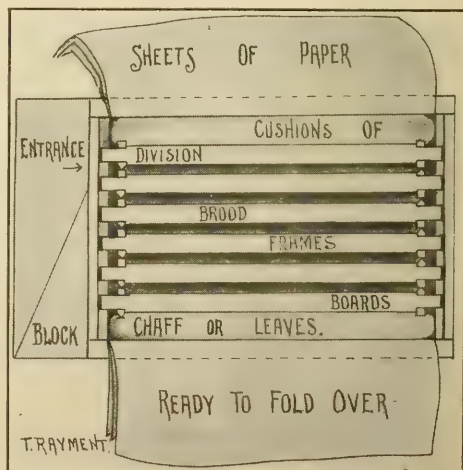
According to our reasoning, which, unfortunately, was logical, but opposed to the requirements of the bee, it should have been the other way about—honey receptacles $9\frac{1}{8}$ and brood $4\frac{1}{4}$. "Why! look what a lot more honey would be stored!" So we constructed our first and only home-made hive on those ill-based principles. In our ignorance we unconsciously invented the shallow brood-frame. The bees did not settle down to work, but deserted their home, which catastrophe led us to seek further information.

A course of study enlightened us, and proved the principles enunciated by Langstroth to be soundly based. We have been taught by sheer necessity one or two additional facts about the fitments of the hive since that time; but the use of the division-board is not yet acquired.

The first consignment of hives we ordered was machine-made eight-frame size. Each

hive was furnished with a division-board $\frac{3}{8}$ inch thick. We tried faithfully to handle them at the start, because all the text-books urged their use; but we were compelled finally to cast them aside as worthless. The hives were more convenient without them.

For eight or ten years we never handled a dummy of any description, altho we depended almost entirely upon the bees for our livelihood. Then a neighbor sold out and we purchased a number of new-pattern division-boards simply a plain board one inch in thickness surrounded by a Hoffman frame. They were very heavy, did not fit our hives, and so we removed the frames and had comb built in them. You see we could discover no reasonable use for the "dummy." The eight-frame body has only



Rayment's plan of wintering a nucleus in Australia.

sufficient room for the requisite number of frames; and why anybody should desire to insert something extra is beyond our comprehension.

It has been suggested that the boards are a necessity when colonies are to be packed for winter; but our efforts are concentrated on getting such a number of bees in the hive by autumn that when the supers are at last removed the brood-chamber is so crowded with bees that some are compelled to cluster outside. Obviously, then, there is no room inside the hive for anything more.

Of course some will insist that, without the dummy, one comb at least will be bulged or misshapen; but in all our experience we have never encountered any real annoyance from this source. And division-boards cost

money, add extra weight to the hive, provide additional shelter for various pests and diseases, and, finally, entail considerable loss of time by reason of their unnecessary manipulation.

We have used hives of many types; but we long ago arrived at the conclusion that the pattern of the bees' home is but a small factor in the apiarist's success. Personally we believe that, with the man himself, lies the secret. The personal equation is the determining influence there, for all other agents or mediums are merely subsidiary to the prosperous issue.

At various periods we have used the eight, nine, and ten frame (Langstroth pattern), the Long Idea, and the Heddon or Bolton hive—these names are synonymous

in Australia—but have failed to discover where one showed preponderating excellence. They are all good hives, and, as professional apiarists, we would be content to handle bees in any one of them. We feel sure that the same average yield could be obtained notwithstanding the pattern. The hives are splendidly effective.

But, to get back to the division-board: We find them convenient only when it is desired to carry mere nuclei thru the winter in standard bodies. The method of our procedure is explained in the diagram. Of course you will know the Australian winter is not nearly as formidable as that of the states. Indeed, the double-walled chaff hive is a curiosity under the Southern Cross.

Briagolong, Gippsland, Vic., Aus.

AN EFFECTIVE ARMOR AGAINST STINGS

BY EMMA STROUT

Better and faster work may be accomplished among the bees when one is assured that there is no danger of stings. My veil is absolutely bee-proof, and yet it allows full freedom of the head, neck, and shoulders, regardless of the position the wearer may take, and, best of all, it can not become disarranged. The veil proper, as shown in the picture, is attached to the shirt, which

has to be tucked in around the coat collar. The elastic band around the sleeves and around the lower edge of the shirt makes it very comfortable and yet entirely bee-proof.

Kent's Hill, Maine.

[This seems to be a very good veil for one who desires absolute protection. It is somewhat similar to the one described by



A veil that gives absolute protection, and yet allows free movement of the arms.

may be slipped on over the head and instantly adjusted. Ordinarily, if desired, it can be slipped back over the head, being kept on the shoulders, but ready for instant adjustment if desired. In this way it takes much less time to put on than a veil that

Chalon Fowls, page 558, Sept. 1, 1910, altho the Fowls veil is so made that it can be detached from the shirt. Mr. D. H. Cogshall used to wear a veil very much like the one described herewith. This was illustrated on page 1497, Dec. 1, 1907.—ED.]



Plenty of snow and cold in Montreal, Can., does not prevent John Mack from securing good crops of honey.

WINTERING IN MONTREAL WITHOUT LOSS

BY JOHN MACK

My bees did not have a flight from November, 1915, until March 25, 1916, and for three months they were buried completely in snow.

I started in 1912 with five colonies, and have doubled every year since, and wintered outdoors in double-wall hives without any loss. I have not fed any in fall or spring, taking my surplus away early in September, and not disturbing the brood-nest until the following spring.

The honey-flow here has not varied very much since I started in 1912. My surplus last season was about 4000 lbs., one colony

giving about 283 lbs. The white clover and basswood gives us the heaviest flow, but we have a great deal of dandelion and sweet-clover honey. The market here is exceptionally good; but bottlers buy up all grades of cheap honey, and the quality is not uniform.

I have seen pictures of apiaries in the southern countries, but have not noticed very many from our northern country, and I wish to show that, while we have lots of snow and cold weather, we can produce a good quality of honey and lots of it.

Montreal, Can.

MARKETING EASY IF THE HONEY IS RIGHT

BY G. W. BERCAW

The question of marketing honey is a broad one, involving as it does the entire country from the Atlantic to the Pacific. Many suggestions have been set forth along this avenue of commerce—some good, some bad, some indifferent. Climatic conditions have some influence on the demand for honey, for I am led to believe that in cold climates more honey is used than in warmer latitudes. Honey as a food produces heat, and is more adapted for eating in cool or cold weather. Our heaviest demand comes

during cool weather or winter, as we call it here in California. My observation shows that a half more is handled and used as a food during cold weather.

I believe in advertising strictly pure honey, then supplying the honey when demanded. It should be put up in packages adapted to the trade served. Only the best and lightest should be put up. It is not necessary for the honey to be "water white." A light-orange tinge will sell just as readily. Either glass or tin containers may be used,

but I am not in favor of putting comb honey in glass cans with extracted honey. The size of package will depend upon the trade and the class of customers in general. "Strained" honey should not be advertised, and, as far as possible, the grocers should be discouraged from handling it as "strained." Have them call it "extracted," nothing else. Glass can be used for samples, also in local stores and for public exhibition and sale; but glass cannot be successfully used in parcel-post shipments.

I believe in advertising. I think it is a good plan to use little stickers on all stationery, and, if possible, to use booklets as

an aid to publicity. We have been using them for the past eight years. Honey ought to be advertised as a strictly clean sanitary article, suitable to use in any household. People must understand it that way.

We have no difficulty in selling all the honey we can handle, but it is necessary to have good fully ripened honey, not a lot of green unsealed stuff mixed with milky brood, such as has been produced in some southern California beeyards lately. Right here is the great argument in favor of queen-excluders to keep queens out of the supers.

Glendale, Cal.

SOME THEORIES ON THE COLOR VARIATION IN HONEY

BY W. I. LIVELY

There has been much discussion as to whether the same plant always produces the same article of honey in color and flavor. I have been waiting to see if some one would spring a theory in accord with my own pet ideas on the subject. Mr. M. H. Tweed, p. 988, Dec. 1, has come very near doing it.

Here in the Salt River Valley, in Arizona, alfalfa is our staple honey-plant. In fact, during a large part of the season it is the only source available. Arizona beekeepers do not spend any time discussing whether alfalfa always yields the same grade of honey in color and flavor. They know to their sorrow that it does not. It varies in different seasons, and it even varies at times during the same season. Now Mr. Tweed comes forward with the theory that this variation is caused by the difference in climate and temperature, and I suspect he is partly right at least; at any rate this is the only theory that sounds reasonable to me; and, moreover, it coincides with my own observations and experience.

Owing to a vast increase in irrigation and cultivation, our climate has changed greatly in the last few years. Summer temperatures are not so high, and there is a marked increase in atmospheric humidity. In correspondence with this change the alfalfa honey has materially lightened in color. Of late we have produced the whitest honey ever known in this section—so white and well flavored that it is comparing favorably with the northern alfalfa, and running close in competition with white clover. Where it used to range from a dark amber to a light amber, it now runs from light amber to extremely light, almost water-white.

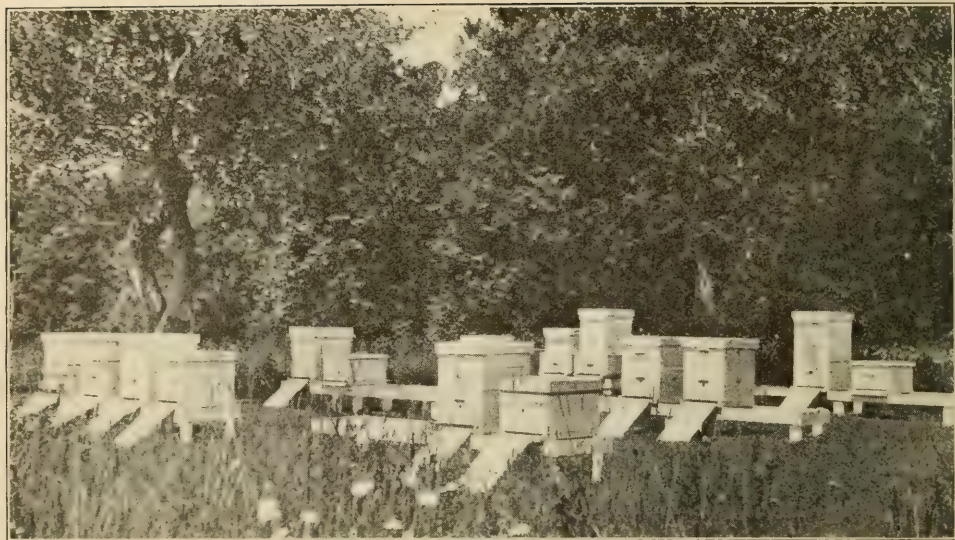
The increased irrigation has not only affected the temperature and humidity, but also the amount of moisture in the soil.

This causes a ranker growth of the alfalfa plant, and I believe that this has something to do with the grade of the honey. I think a honey gathered from the plant when it is short of moisture, dwarfed in size, and blooming rather prematurely, has a tendency to be thicker and darker. Last year I extracted four different times during the season, and no two lots of honey were exactly the same in color. The darkest was in the hottest, driest part of the season when the plants were making their least vigorous growth. The best color was obtained in June and early July when the alfalfa was at its best, and the irrigation was heavy.

Now I also suspect that the color of honey is regulated somewhat by the volume and rapidity of the flow. When the blossoms are secreting rapidly and heavily, and nectar is just "rolling in," as we say, I suspect it is lighter in color than when it is coming more slowly.

I confess that this is all mere theory gleaned from my experience. The worst of it is, that every once in a while something will happen that seems to upset all the carefully worked-out theories; and conditions that ought to produce certain results will seem to obtain the opposite; but conditions and results as I have given them here seem from my experience to be the general rule of causes and effects, and possibly the occasional variations are the exceptions to the rule. At any rate, I am convinced beyond a doubt that here, at least, there is a variation in the color of alfalfa honey; and I think that some or all of the conditions I have mentioned, or perhaps, more strictly speaking, certain combinations of these conditions, produce the variation.

Glendale, Ariz.



Eighteen colonies owned by the Flintstone Farm, Dalton, Mass., that are kept to pollinize 3000 trees.

BEES A GREAT HELP IN A 3000-TREE ORCHARD

BY RALPH ELY

We have an orchard here at Flintstone of about 3000 young trees, and in connection with this we are interested in beekeeping, as bees are essential to the success of the orchard. We now have about eighteen colonies which did extremely well this year, as there was a fine flow of honey.

We believe that the size of our apple crop this year was due in a great measure to our bees. We note in our vicinity that

the fruit did not set according to the amount of bloom, and hence we believe that bees are one of the essential factors in successful fruit-growing.

We are running to the leather and Golden Italian, and find that the Golden, particularly, give us a great amount of honey, at the same time showing very little inclination to swarm.

Dalton, Mass.

A SIMPLE METHOD OF FEEDING WITHOUT EXPENSIVE EQUIPMENT

BY L. C. LE MAY

I have had so many inquiries asking for more information on my article published Nov. 1, 1914, that I feel prompted to write a further article on my experience in feeding. The method that I outlined in 1914 is the most satisfactory of any plan that I have tried for cold-weather feeding; but to have it work properly the colonies should be prepared for it in the fall.

For feeding in milder weather to stimulate brood-rearing, storing up in the fall, etc., I have a method that works better than anything else I have tried. I take a super-cover and bore four or five holes 1 or 1½ inches in diameter far enough apart to admit placing the Mason-jar feeders, mentioned below, over them without crowding, and yet not too far away from the center of

the hive. Over each of these holes I place a quart Mason jar with a perforated cover such as is used with the Boardman feeders, with a strip of tin soldered around the top or cap so as to raise it about 5-16 inch above the hole, allowing access to all the holes in the feeder. I have also used empty Crisco cans. By punching the cover full of small holes it makes a first-class feeder for this purpose. Another full-depth super must be placed on top of the super-cover and feeders with the hive-cover over that. For stimulating brood-rearing, all the holes in the feeder but two or three should be stopped up. One feeder for brood-rearing is enough, but for supplying winter stores as many may be used as desired.

This method works very well, and does

not cause robbing and stings. At the same time, it allows feeding the bees without disturbing them, which is a good feature.

If there are a few bees about the feeders when they are refilled it is well to use a little smoke to get them down out of the

way, and then close the holes with corks until the jars are refilled. All that is necessary to do when not using the super-cover for feeding is to plug the holes with corks, and then it is just as good as before.

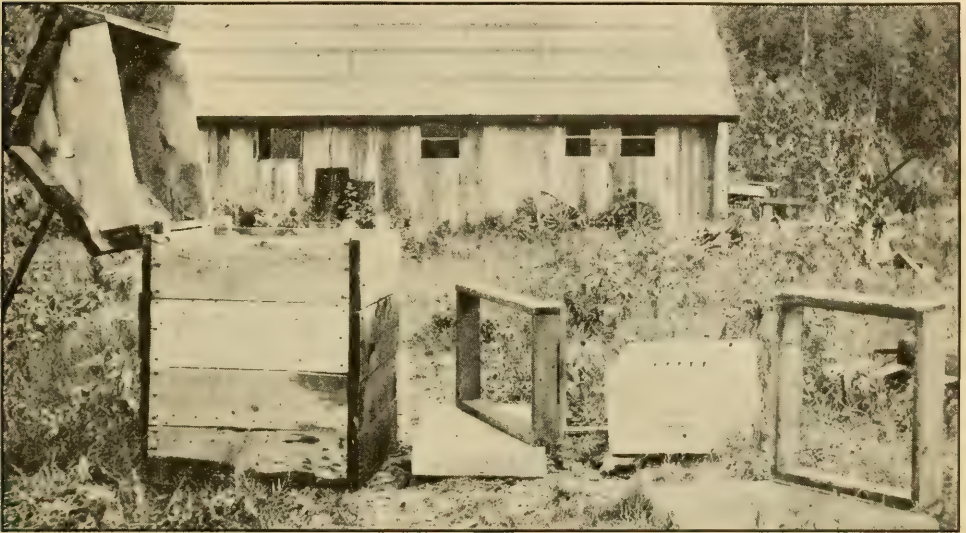
West Hartford, Ct.

WINTER LOSSES LESS THAN TWO PER CENT

BY JOHN A. STEVENS

My bees are located in a well-protected spot sheltered by my shop and honey-house, and by a large semi-circular hill covered thickly with a second growth of brush. It

ings and a plain board cover over the cloth. The case is large enough so that there is a four-inch space all around the hive when it is placed inside, which space is also filled



A winter case for one hive which permits a four-inch packing-space all around.

is an ideal place for an apiary; for when the wind is blowing a gale out by my residence, in the beeyard it seems like a nice quiet day.

The winter cases that I make hold one hive each only. The bottom-board is 24 inches long, and the 2½-inch tray which rests on it is the same length. A board 4 inches wide is nailed on the upper end of the tray, over the notched opening for the entrance. This leaves 20 inches for the hive, which abuts against this board. This means that the bees are obliged to travel 4 inches besides the thickness of the tray and the winter case before they get out.

I place an inverted butter-chip on top of the frames crosswise, then a cloth cut from an old sack. An empty super placed over all holds the cloth in position. When I pack I fill the super with planer-shavings and then another cloth is placed over the shav-

ings, as well as the 10 or 12 inch space on top of the packed super.

With this particular arrangement I do not have to worry about the entrance becoming clogged with dead bees. In very



The case and the hive. The ample packing reduces winter losses to less than two per cent.

cold weather, or if the bees are not sheltered, I contract the entrances down to one inch. All the trays have $\frac{3}{8} \times \frac{3}{8}$ entrances which correspond with the entrances of the winter case.

My losses with this method for the past

four years are less than 2 per cent; furthermore, the colonies come thru very strong. I have found new honey stored in the butter-ship over the brood-frame as early as May 10.

Mio, Mich.

A SANE AND SENSIBLE BEE DEMONSTRATION

BY JOSEPH GRAY

There is no question but that live bees properly handled make most telling advertisements at county or state fairs. It is the purpose of this article to set forth a sensible exhibit that will always draw a crowd, and yet give the lecturer time to become calm enough to command the attention of his audience without resorting to silly stunts that raise a laugh but do not impress the mind.

PREPARING THE BEES.

Two colonies of bees will rob and fight, if the day is not just right; therefore one only should be used, and it should be selected for its gentleness. Having the colony selected, the next point is to secure the queen, two drones, and four workers in a cage 2×3 inches, and $\frac{7}{8}$ deep; glass one side, and screen on the opposite side. Take care to have the cage supplied with sufficient candy and of the right consistency. The next step is to prepare the colony. This should be fixed up in a traveling-hive made from an ordinary ten-frame body with a one-inch space underneath the frames and a floor-board securely nailed on. The entrance should be arranged so that it may be quickly closed and fastened with one screw. A ventilated cover with handle completes the traveling-box along with a square of canvas for a quilt.

The combs should be well built and wired—neither too new nor too old. One comb should contain a portion of drone-cells and a couple of queen-cells. These are easily produced by taking two old cells and fitting into the comb a few days previous. The bees will tear down a live queen-cell, but will build in an empty queen-cell. Only a moderate amount of honey must be left in the hive, and it should be mostly sealed. The colony ought to be removed to a new stand two days prior to the show, so that most of the field workers will be left at home. It is the old fielders that do most of the stinging. Nearly all the brood should be removed, reserving only one or two combs that are necessary for show work. Such a colony does not have too many bees to travel with nor to handle.

ABOUT THE TENT.

A tent should be secured, slightly off from the main stream of visitors, but sufficiently near to a scheduled exhibition ring so that, when the crowd turns from the ring, the people will be ready for the bee exhibit. The tent can be made of 4 panels 12 feet by 8 feet, the top half net or screen, the bottom canvas or board. It is well to put guy-ropes at the corners; for the pressure is often very great if a crowd of 1000 gathers round.

The hive should stand on a packing-case rolled into the center. The bees should be given free flights, either the day previous or early on the morning of the show. This enables them to locate and use the open top, to go and come.

MAKING AN ARTIFICIAL SWARM ON AN ARTIFICIAL TREE.

When ready for the demonstration, prepare two or three carbolized cloths full strength (dry, not wet). Place the hive on the ground and adjust an artificial "bush." Here in Imperial Valley I use either the bough of a willow or cottonwood trimmed neatly and suspended from wires overhead so that it will just touch the middle of the table or box. Put on the veil. Don't be foolish about this—at least until you are sure of the temper of the bees. Have extra buttons on the cuffs so that you can button the sleeves tightly around the wrists. You may not need these preparations, but yet you may.

Open the hive, using the smoker. Hang the cage with the queen in the bush. The hive, being one comb short of its full number, is easy to manipulate. As rapidly as possible take out each comb and shake (not brush) the bees on to the table. As the crowd is increasing the air will be full of bees. Cover up the hive. Calmly lay a carbolized cloth at the edge of the bees on the table, and put another cloth on the opposite side. The bees will begin to run like a flock of sheep toward the bush. You can drive them and turn them at your will. Pick up a baby bee and throw it into the center of the bush. Urge up a few strag-

glers, pushing them forward with your hand. Hang the bush a bit higher, little by little, and the crowd will grow excited as they see a hundred bees hanging on to one bee. Hang the bush still higher, till at last the swarm is above, and the time for talking is at hand.

Few words are needed. Tell how you have made a swarm as near as possible to a natural swarm. Explain some of the inner

mysteries of the hive; exhibit the cage with the queen, drones, and workers, and then hive the swarm.

Simply tell the people what you know, just as tho you were talking to a friend. Use a few notes, if necessary, written on a folded card. After 14 years of lecturing you may forget something; yet the event will have been a success.

Heber, Cal.

THE OHIO FIELD MEET AT MEDINA

BY E. R. ROOT

As announced in our last issue, page 837, this was held in Medina, August 25 and 26. All told, there were 150 that registered, and something over 100 that participated in a "honey" luncheon on the first day. As already explained, Dr. E. F. Phillips, of Washington, and Mr. C. P. Dadant, of the *American Bee Journal*, were unable to be present. But fortunately we had with us Mr. P. G. Clark, of the firm of Doolittle &

rator in connection with a special manipulation that he uses with shallow brood-chambers. He has been an invited speaker at many of the large conventions of the country and is a good talker.

Some years ago Mr. House was rash enough to champion the Alexander method of treatment for European foul brood at a time when the bee-inspectors of New York and every one else, nearly, discredited it.



FIG. 1.—The Ohio State Beekeepers' Association on the occasion of the field meeting at Medina, August 25 and 26. The luncheon consisted of rolls, cakes, salad, cereal coffee, and ice cream, all of which were made with honey.

Clark, of Marietta, N. Y., and Mr. S. D. House, of Camillus, N. Y. The former is a breeder of high-class queens—queens bred for good looks as well as for service—queens that have proven themselves to be highly resistant to European foul brood. Mr. Clark is also one of the best honey-producers in his state. Like his partner, he is a careful observer and a good business man.

Mr. S. D. House is a comb-honey expert—a man who, in his state, produces the finest comb honey, practically all of which grades "Fancy" or "No. 1." He does this by the use of the Betsinger wire-cloth sepa-

When we visited Mr. House at the time, he had cleaned European foul brood out of his yards, notwithstanding the disease was rampant in all the yards within flying distance of his own. He showed us colony after colony that he had treated by dequeening for ten days and then requeening with vigorous Italian stock. With no other treatment these colonies were in perfectly healthy condition on the same old crooked combs in the same hives. We were so interested we asked him to write up his method of treatment; and almost instantaneously the bee-inspectors all over the country criticised us for publishing such "nonsense." Some



FIG. 2.—Messrs. Raut, Clark, and House, our distinguished New York visitors, just getting the point.

even went so far as to say that such “stuff” would be the means of spreading European foul brood all over the country, because it would be impossible for the inspectors to have the orthodox treatment (the McEvoy) applied.

Some years later, when Dr. Miller had

the scourge of European foul brood, we advised him to follow Alexander’s and House’s plan, and the readers now know that Dr. Miller does not fear European foul brood. Today the Alexander-House-Miller method is accepted as orthodox. “But,” said Dr. Phillips, whom we met recently,

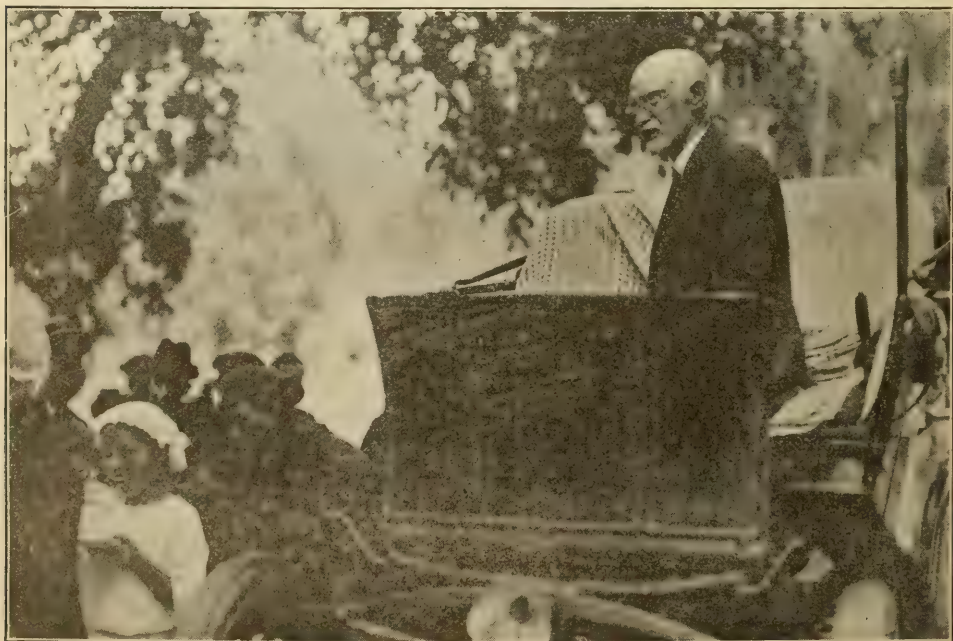


FIG. 3.—A. I. Root, in his electric, telling the Ohio beekeepers something of his early experiences as a beekeeper.

"the treatment is all right in the hands of the expert and the careful; but with the negligent and the careless, additional treatment should be applied."

With this preliminary we will now introduce Mr. House, who is seen at the right, Fig. 2. In the center is Mr. Clark, of Doolittle & Clark; and at the left is Mr. Raut, another New Yorker, who came with the two other gentlemen. In Fig. 3 is seen A. I. Root in his electric automobile telling some of his early experiences as a beekeeper. He mentioned his mistakes as well as his successes. In recounting some of his blunders he provoked a smile on the faces of his hearers; and at just that strategic moment our artist caught the trio as in Fig. 2. In Fig. 3 A. I. Root is seen in one of his characteristic poses when he is just on the eve of bringing out his point. It is a very natural picture of him as we see him every day in the office.

Fig. 1 shows the beekeepers sitting on extemporized seats eating their honey luncheon and drinking their honey cereal coffee, winding up with honey ice-cream. Over at the extreme right is seen A. I. Root addressing the beekeepers. The seats are on the lawn of E. R. Root, under the apple-trees, with the house in the background.

Among other speakers of the evening were Mr. Fred Leininger, a breeder of fine queens, and President of the Ohio State Beekeepers' Association; Mr. House, Mr. Clark, and Bee-inspectors Ames and Phillips; Prof. Jas. S. Hines, of the Ohio State University, and Melville Hayes, an attorney at Wilmington, O.

On both days, modern extracting machinery, including a power extractor and an uncapping-outfit, were in operation for the visitors. All were given the privilege of going thru the factory buildings, including the honey-bottling department, where honey is being put up for the general market.

On the afternoon of the first day a moving-picture film showing many live-bee operations was put on for the benefit of the visitors, at the Princess Theater, Medina.

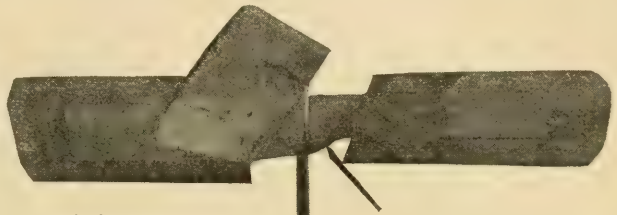
On the second day, the company were taken in automobiles to the queen-rearing yards north of town, where the entire operation of rearing queens was illustrated and described.

A FAN FOR HOT DAYS IN THE EXTRACTING-ROOM.

When the crowd reached the extracting-room there was considerable joking about

the "windmill" up over the extractor; but when we started up, the affair proved the truth of the saying, "Handsome is as handsome does." It was a hot day, and the breeze easily felt fifteen feet away was very welcome. This sort of fan means very little additional load for the engine, requires no extra belting or machinery, and can be constructed at a very slight expense. A half-inch pipe with a coupling on the lower end will just slip over the upper end of the vertical shaft in the extractor. There ought to be one or two set-screws in the coupling to hold the pipe firmly to the shaft.

At the upper end of the pipe there should be a saw-cut running down thru the middle



a distance of $4\frac{1}{2}$ inches, and at right angles to it another one the same depth. Two pieces of heavy sheet metal, four inches wide and three feet long, should each be bent to a right angle in the middle. A thin board eight inches wide for a paddle should be tacked to each end of



the two pieces of sheet metal. When these wings thus made are dropped into the saw-cut a cap should be screwed on to the upper end of the pipe holding them solid. The fan is completed by giving each board a twist, making a uniform bend in the sheet metal next to the pipe.

When running, if the fan shows a tendency to wobble somewhat, a small hole may be drilled into the center of the cap on the upper end of the pipe, and wooden

braces run from there up to the ceiling. A single nail thru the lower end of one of the braces into the hole in the cap holds the upper end of the pipe securely and makes the fan run true.

On cool days, or whenever the fan is not

wanted, it is the work of but a moment to loosen the set-screws at the lower end of the pipe and lift the whole thing off.

The next Ohio field meet will be held at the apiary of Mr. Melville Hayes, Wilmington, O.

MAKING COLONIES BY FEEDING SYRUP

BY PAUL FUNK

During 1915 the honey crop with us was a complete failure, consequently we had no natural increase of bees. Not wishing to lose a whole year of the bee business, and desiring more bees, I decided to make increase by feeding.

During the first week of July I started my increase with two single-frame nuclei of brood and bees taken from old colonies. To these two nuclei I introduced young queens. The new colonies were fed syrup made of 2 to 2½ parts of granulated sugar to one of warm water, stirred until thoroly dissolved. These colonies went into winter quarters with eight combs fully drawn out. Some of the frames had contained full sheets of foundation, and some only starters. Each hive was heavy with honey (sugar), full of young bees, and with a good portion of brood. The colonies wintered outdoors in good condition, coming out in the spring with plenty of bees, and with feed enough for spring breeding. There was no trace of dysentery. About one-third of the other colonies wintering on natural stores died, and some were left very weak.

As to the cost of these made colonies, the sugar was bought just before the 1915 sensational advance in price, for \$5.65 per 100 pounds. An average of 22½ lbs. was fed each colony. Therefore, for building up each nucleus to full strength and with sufficient stores for wintering and spring

breeding, the sugar cost \$1.27. The queens cost 65 cents, making \$1.92 as the total cost of sugar and queen for each. Surely this is a most reasonable cost for a strong colony of Italian bees with a young queen.

Last year, about Aug. 1, a colony superseded its queen. This colony cast a swarm which settled in two parts. The smaller bunch had probably half a gallon of bees, which were hived on full sheets of foundation. They were given a young Caucasian queen, fed 18 lbs. sugar, and this summer the colony was one of my best.

Some one will probably think that these made colonies carried in some fall honey. They got very little, for there was but little honey to get, and until late in the fall the colonies were not strong enough to do much field work. The bees seemed to have devoted their every effort to increasing from the sugar fed.

Warsaw, O.

[We believe that these nuclei, in spite of what our correspondent says, secured some honey from natural sources. If 22 pounds of sugar was fed, that would mean 33 pounds of syrup — barely enough under some conditions to winter a good colony, to say nothing of making the increase in bees, permitting the comb-building, etc. We fear that the figures given are low. Then no account is taken of the labor—an important item, surely.—ED.]

FEEDING IN TWO-QUART JARS OVER THE BROOD-CHAMBER

BY W. C. MOLLETT

I have tried almost all the bee-feeders on the market, and am not fully satisfied with any of them in all respects, altho all of them have some advantages. Lately, I have been trying another method which is not quite like any other, altho it is on the Boardman principle. The first thing necessary is a flat cover the size of the hive, and about ¾ inch thick. With a brace having an expansion bit I bore a hole in the center of the cover just the right size to admit the cap of a Mason jar, which is about three inches.

These feeder-boards are best made of one piece of lumber; but they can be made of a number of narrower pieces when necessary. After the boards are ready I get some caps for use in Boardman feeders, and then prepare the syrup as usual. Then I fill the jars with syrup and put a rubber ring on the cans as they are used in canning fruit, and put the caps on them. I remove the hive-cover and place the feeder-board upon the hive, and then I am ready to feed.

I go around to each hive to be fed, and

simply invert the jars and place them with the caps in the opening in the center of the feeder, and the sides of the jar rest on the board so that they will not turn over. This brings the caps directly over the bees in the most convenient position for them to carry down the syrup. By this means I can feed at different times during winter, as the bees can carry down the syrup when it is almost freezing cold. Of course it is always better to feed before the weather becomes very cold, but sometimes we are prevented by having other work, and are compelled to feed later than it should be done. For my use this method is far superior to any other, altho, of course, others might not appreciate it. I generally set an empty hive over the jars and replace the hive-cover to keep out dampness, and in this way there is no hurry about removing them.

Some of the advantages of this method are: It is possible to feed a considerable number of colonies in a short time. If the

syrup is not carried down at once it can remain until the bees find the weather suitable; also you can see at once just how fast the bees are carrying the syrup down; and it is possible to regulate the amount by stopping up some of the holes in the cap.

By using jars holding half a gallon, filling is necessary only once or twice. The bees can carry down about half a gallon per day when the weather is warm, and this makes it a short job to finish all the feeding for the season. This method makes it possible to feed without causing robbing. Also by feeding over the cluster it does not tend to cause the bees of the other colonies to become excited. I first learned this method from a neighbor, Wm. Damron, and so I call it the Damron method.

Stonecoal, W. Va.

[Mr. LeMay, p. 724, describes a plan very similar to this except that he bores smaller holes and more of them.—ED.]

APHORISMS, SUNDRY AND OTHERWISE

What about Feeding Sugar and Requeening in August?

BY ARTHUR C. MILLER

[The following article, as will be noted, was written some time ago; but because of the crowded condition of our columns during the publication of the summer special numbers it has been held over. The reader will not properly understand what it is all about without turning back to Mr. Crane's interesting article on feeding sugar syrup, etc., page 145 of our Feb. 15th issue.—ED.]

The editor is to blame—as usual. If he hadn't put the Greek into my title I would not have got in Dutch with Mr. Crane. At first reading of his come-back (February 15, page 145) I was inclined to think my notes were at fault; but now I see it is a matter of the difference between the Crane and the Miller policies.

When I have said requeening in August, I have usually taken pains to borrow Dr. Miller's saving phrase, and add "in this locality." Midsummer—July—is when our main surplus flow comes, and sometimes it runs well into August, so we do very little dividing then. When we divide after that, as well as at other times, it is a process of taking from more or less of the colonies one or two combs of brood each and making good colonies from them and giving each a queen. That keeps all in the "strong class." Thereby I gain over Mr. Crane's way. Did you ask if I never have any weak colonies? Certainly I do; and, furthermore, you will be pretty sure to find some of them being wintered, or attempted. But you can count them on your fingers, and generally on those of one hand. They are experiments.

Bees usually get abundant stores in August, September, or early October (or in

all three months) if the colonies are strong; hence I say, "keep them strong." When Mr. Langstroth first wrote that, he was a southern New England beekeeper.

As to feeding, much recent advice has been toward feeding thin syrup so the bees would "invert" the sugar. Others said feed, late and quickly, a thick syrup. Now the poor bewildered novice is in a nice state of mind; and, oh how often I find feeding put off until bees are slow to take the feed and then cannot properly store it! Unfortunately in our climate if we feed early—say about September 20—we may find so much brood that there is not much room for food. If we wait until a little later we may run into an early cold spell and find it almost impossible to get satisfactory storing. So in this locality we try to keep our colonies strong, then they will force down brood-rearing if the fall flow is good, and seldom need feeding; and if we have to feed, the colonies are big enough to handle it, even if we have a cool spell. But for five years prior to 1915 the late flow failed and a lot of feeding had to be done. In 1915 there was a fine fall flow, and the strong colonies forced down brood-rearing, packed everything, and went into winter quarters in ideal shape.

No feeding or fussing we can do will give results equal to those the bees secure when conditions favor, and those conditions are a flow and *plenty of bees* to take care of it.

Now 'tis said, "confession is good for the soul;" and if it were only equally good for material customs and habits it would help us a lot. Mr. Crane says he has fed "tons and tons of sugar syrup." If it were any one else I'd say he was a mighty poor beekeeper; but I don't dare say it of Mr. Crane; but I can most positively say that the need of feeding can be materially lessened by different (improved) methods. (Phew! I almost said, "by better beekeeping.")

(Lest those who are not familiar with my chaffing should construe the foregoing as a hit at Mr. Crane, let me here say that it is *not*, but is intended to arrest attention and direct it to the costliness of many widely followed practices.)

As for "protecting combs from wax worms," his was a rather costly way. Just figure the labor and the food. He says it proved a financial success. I wonder how he figured it.

I can keep combs more cheaply than that; and if I wanted increase at that season (most of ours is made *before* the crop) those combs would have been traded for one or two frames of brood from every colony, and the new colonies would have nearly equaled the old from the start. It is quick, economical, and gives the best of results. But wax-moths bother me only where black bees are kept near.

Rather presumptuous for me to try to tell you how to keep bees, isn't it, Mr. Crane? To be sure I've not kept bees quite as long as you have (I began in 1880), and I have not so many as you (about 200); but my needs have compelled me to make short cuts, and my business training has led me to put the yardstick of cost on to my operations. Oh, yes! I do some things which are not economical; but that is where I am experimenting—that is my play.

Do you realize what it costs you to pro-

duce a pound of honey? (Comb and extracted are pretty much the same.) Do you know that it costs some specialists over ten cents a pound, taking good years and bad? Do you know that two or three go as low as two cents? But these latter sell their own crop, so they have only half a year's labor to charge up to cost of production.

There is the matter of annual requeening which I follow so carefully. Young queens and fine combs I consider the foundation on which all the other parts of my beework are built. But it is assailed by many because they say so many queens are good for several years. If they will tell me some way by which I can pick the good ones at the



"Bill" McLeod, whose apiary is shown herewith, according to the *Necpawa Press* (Manitoba), is a practical joker. At an agricultural fair he entered some specially prepared honey as soft soap, and the unsuspecting judges gave him the second prize. He kept the matter secret until he had secured possession of the blue ribbon, then gleefully started out, exhibiting his "soft soap" and the ribbon. Doubtless the judges had not tasted the soap.

start I'll consider their methods. When I see the miscellaneous assortment of colonies they have each spring, and hear them tell how they go to building up, etc., I am content to follow my plan, even if I do unwittingly destroy some queens which, if allowed to survive, would have proved to be sisters of some bee Methuselah. Then queens are so cheap I really cannot afford not to use them liberally. They cost me less than ten cents each.

In that same issue (Feb. 15), page 139, Dr. Miller takes issue with some one for saying that there is no need of having a queen a year old to determine if she is a good breeder. Well, I fear that I must take sides against the doctor; but with this qual-

ification, the "strain" must be known; however, my queens are at least eight months old before I pick the breeders—only one strain in my yards so far as I can manage it. It makes for economy, and is one of the reasons why I let out against late feeding; for so few beekeepers have all colonies alike, and so many have a lot of colonies short of young bees, and those are the ones which usually suffer the most from late feeding, particularly of thin food. Variation from normal proportions of old and young bees is at the bottom of many of our troubles in beekeeping at other seasons as well as in the fall. The only practical way to avoid such variation is to keep the colonies headed with vigorous queens *all the time*. Then "building up colonies" in the spring and feeding tons of sugar in the fall ceases to be a habit. (Dr. Miller's building up is quite a different thing from the common practice; but it is very costly in labor, and I have often wondered if he could not avoid the need.)

As to bees in orchards, I was talking of *my* bees while Mr. Crane was thinking of the *orchardist's*. For the sake of my peace of mind I want my bees "horse distance" away from where they are to be worked.

That phrase did just what I made it for—drew attention to the need of keeping bees and horses a safe distance apart.

If Mr. Crane will visit Essex County and some other sections of eastern Massachusetts he will see the curse of spray-crazy people. So long as orchardists are careless in such matters, so long they must buy bees to poison. I'll keep mine a safe distance away. It is the "times that spraying does kill the bees" that I am afraid of; and as I cannot tell in advance, I avoid the risk.

So far as perfect pollination of a big orchard in a stormy spring is concerned, the scattering of bees thru the orchard is the best, as I showed twenty years ago. But in the article Mr. Crane took issue with I was considering *my* honey crop, while he was thinking of the orchardist's fruit crop. I keep bees for honey, not to accommodate some one else. If my business and his work in harmony he is welcome to such benefits as my bees will give; but otherwise I shall move to distant fields, as I have had to do in one case.

So the reader will see that Mr. Crane and I are not so very far apart. We were simply looking at things from a different point of view.

Providence, R. I.

HOW TO MOVE HIVES OF BEES SHORT DISTANCES

BY DR. C. C. MILLER

When a bee takes its first flight it spends some time in marking its location, not so much in noting the appearance of its hive as that of the surrounding objects. Change its hive, or the appearance of its hive, and it will show some confusion and hesitation about entering, but will soon accept the change. Move the hive to a new place, and just what the bees will do depends on circumstances. When I had only one colony of bees I moved the hive to a new place about a rod distant. When bees next returned from the field they went straight to the old place from which the hive had been moved. Surrounding objects had not been changed, and by them they were guided. After sailing about the old spot for a little while they began to search the neighborhood, and soon found their old hive in its new place. How far it might have been safely moved I do not know, but very likely it might have been ten rods or more, possibly much further.

But it's quite a different matter with the present number of colonies in my apiary. If I move a hive to a new location the bees returning from the field will be likely to

enter one of the hives *nearest the old location*. So it may happen that they will not find their hive if it be moved only four feet, if that leaves some other hive within less than four feet from the old location, as would happen where two hives are standing close together and one of them jumps to the opposite side of the other.

As a general rule a bee probably marks its location once for all. That lasts for its usual lifetime of about six weeks, and no doubt would last indefinitely if it were to fly daily. But after confinement for a time, upon its first flight again it will mark its location anew. How long a confinement is necessary to make it mark anew its location I do not know; but I know that it varies greatly according to circumstances. After the confinement of three or four months in winter the location is invariably marked upon the first flight in spring; yet even then, if a hive taken from the cellar is put on a stand other than the one it occupied the previous fall, the bees will in some cases be seen flying about the old stand, showing that it has not been utterly forgotten. On the other hand, at a time when a heavy flow

is on, if stress of weather confines the bees to their hive a very few days, they may be seen marking their location as soon as permitted to fly.

Bees may also be seen sometimes to mark their location anew after being confined to their hives a few hours, a few minutes, or not at all, if they have been under some great excitement, such as the excitement caused by being heavily smoked.

There seems good reason to believe that there is a more or less close connection between a locating flight and forgetfulness of location; in other words, that when bees mark their location at any time it is to forget all about where they were previously.

In a few words, then, we find that bees mark the objects surrounding the hive rather than the hive itself, and that confinement and excitement are elements that help to make them mark their location and attach themselves to it.

With these points in view we are ready to consider what must be done to make bees stay put when moved to a new location.

If a colony be moved ten miles from its old location, no precaution need be used, no matter when the change is made. There will be no danger of the bees returning to their old location, for it is beyond their finding. Nor need the distance be ten miles. In most cases probably a mile and a half, or even a mile, would serve. But, no matter what the distance, if the bees upon going afield from their new location should happen upon ground whereon they had previously pastured, it is quite likely they might return to the location they had always known as home.

Suppose, now, that we want to move the colonies of an apiary a short distance at a time when they are in daily flight. If the distance be only four or five rods, with no other bees nearer, and if the hives have the same relative positions in the new place that they had before, each bee might be expected to find its own hive without trouble. But at some point the distance may become so great as to make trouble, possibly at the distance of one or two city blocks. More or less of the bees upon their first flight would return to the old location. Everything would look homelike to them except that their hives were absent. We can imagine them circling about the old spot, perhaps to the distance of a few rods, looking, looking, for the old home, and finally settling down upon the old stand, saying, "Well, this must be our old home; everything looks homelike, only our hive is gone. No use to look any more; all we can do is to stay here and wait till it returns, if it

ever does return." And so they settle down despairingly to await the end that comes to them in due time. Clearly it would help matters if they could not recognize the spot as their old home; and that will be accomplished by changing appearances, moving or removing any old objects that are movable, and bringing upon the ground new objects, thus practically taking away their "location."

However long or short the distance, we may take advantage of the two factors previously mentioned — confinement and excitement. In the evening before removal the bees may be fastened in the hives or else in the morning before they fly, and not opened till some time the next day, care being taken that they are not left so long as to smother in a very hot day. An hour's confinement at a time when the bees are anxious to get into the field may equal a month's confinement in the middle of winter, for the bees become very much excited when they find they cannot get out. Instead of moving the bees so softly that they shall not know they are being moved, they may be left on the old stands till well on in the day, and then trundled on a wheelbarrow or taken by some other rough conveyance. The rough handling increases the excitement, which may be still more increased, if thought necessary, by pounding on the hives just before opening the entrances and by smoking. A common practice is to put a board before the entrance for the first flight. This, either on account of added excitement or for some other reason, helps to make the bees mark their location.

Suppose, now, that the bees have been moved, and that for fear of smothering them we have not been vigorous enough in our precautions, and that some of the bees have gone back to the old place, perhaps settling in clumps. The case is not at all hopeless. Set in the old place a hive containing a few combs, with or without honey, and in the course of the day all the returning bees will be assembled in this hive. Take them to the new location and give them where they will do the most good. Repeat the performance the next day if any more bees return. So effective is this treatment that it may be used as the only means to attach the bees to a new location. For the transition from the cheerless condition of being without a home or a mother to one where they have both is so great that the joyful excitement destroys all attachment for the old home and awakens a lasting attachment for the new.

Marengo; Ill.

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

Uncle Benny Motherwort thought the sour smell around the home yard was foul brood. When they convinced him it was from goldenrod he was afraid to eat it for fear he'd get the hay fever. Benny's boy says his pap is such a pessimist that he chews his quinine pills.

Giving Away Stock to Requeen a Locality.

The thanks of the whole fraternity are due J. L. Byer for his graceful and manly defense of queen-breeders on p. 185, March 1. I have faith enough in humanity to believe that most of the queen-breeders are trying to do the right thing by their customers, knowing that, unless they do so, they can never hope to build up and hold a trade that will justify them in following the business as a vocation.

No doubt there are some who advertise themselves as queen-breeders who should never have attempted that line of business. They have been so excited over the great profits(?) to be made by selling young queens for 75 cents to \$1.00 each that they have rushed into the business without adequate preparation. Before one attempts that line of the bee business he should be sure that he has a superior strain of bees, not as shown by the yield of a few individual colonies, for that may be the result of robbing, but by the average results from all the colonies.

Then he should be sure that he knows how to rear the best queens. He should practice for several years, rearing his own queens

and noting how they turn out as honey-gatherers.

When he knows that he is fully qualified along both these lines he should next clean up all the hybrids and strains, other than his own, within mating distance of his queen-yard. This is not so difficult as it may sound. He must not expect his neighbors to purchase his queens at catalog prices. They are not enough interested in bees for that. If a neighbor has only a few colonies it is the cheapest plan to give him untested queens and introduce them for him. If he has from twelve to thirty or forty colonies the young queens may be reared in the man's own yard from cells grafted with larvæ from our best breeders. A few colonies of pure stock will usually be found. The drones of those colonies may be allowed to fly, while the drones of other colonies should be trapped and the heads of all drone brood shaved off. This will generally result in a fair percentage of pure matings. Any mismated queens may be replaced later. I have found small beekeepers quite willing to co-operate in requeening their bees. In fact, they are usually delighted with the idea, when they find it is not going to cost them any money. If the would-be queen-breeder is too much of a "tight wad" to do that much for his neighbors, when it is himself that is to reap the greater profit, he'd better keep out of the queen business, for he will certainly be called upon to make greater sacrifices than that. When he thinks he has all the hybrids and bees of off color cleaned up in his neighborhood he will still have a queen mismated occasionally.

Mathis, Texas.

H. D. Murry.

Newspaper-wrapped Hives.

The method I use to prepare bees for winter is not new, but it may be new to some. An escape-board is first placed on top of the hive-body, and, over the place where the escape should be, a piece of burlap. If the bees are short of stores I put on a paper pie-plate or more of hard candy, spaced from the escape-board by two or three small sticks, and then the burlap. A super is then set upon the escape-board and filled with planer-shavings.

I then take several newspapers or two thicknesses of building paper and wrap the hive up as I would a package (not the bottom of course), folding the paper over the top and then slipping the metal cover down over the super, first placing a small stick or nail on the edge of the super to make a little air-space under the cover.

The paper is then tied tight at the bottom with a single piece of twine and pieces of lath tacked up and down where the newspapers overlap, or wherever the paper seems to bulge a little, driving the nails only part way in, so they may be easily removed in

the spring. One would think that the first rain would wash newspapers off; but such is not the case, as they will be almost as good when taken off the next spring as when first put on. If the entrance becomes clogged with dead bees or snow and ice, the bees will be able to get sufficient air overhead, thru the shavings. This location is very near the center of Pennsylvania, and this method of wintering has given me uniformly good results.

I find it a good plan to leave the super of shavings on until June 1, even tho the paper has been removed. It will greatly assist the bees in keeping up the temperature of the hive during cool nights, as the shavings absorb a certain amount of heat during the day and release it very slowly.

In case it is necessary to put a super on during fruit-bloom, all one has to do is to lift the escape-board, super of shavings and all, and slip the other super underneath.

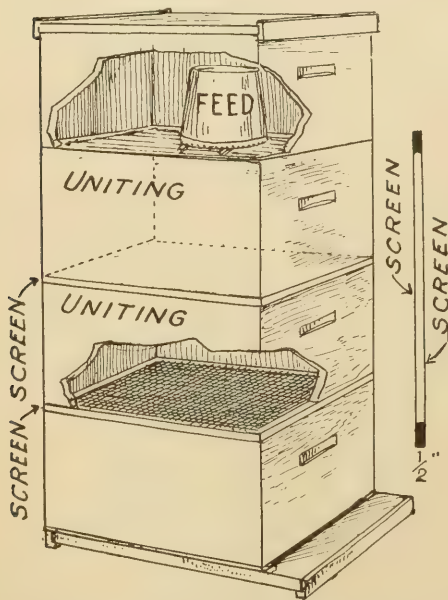
When the shavings are removed, if they are placed in front of the hives an inch or so thick they will keep the grass and weeds down for a long time.

Osceola Mills, Pa.

J. A. Allard.

A Uniting and Feeding Screen.

For uniting I use a double screen that I think is very convenient. I make a frame $\frac{3}{8}$ or $\frac{1}{2}$ inch thick of strips $1\frac{1}{2}$ or 2 inches wide, the outside measurements being the same as the outside measurements of the hive. I make mine $16 \times 19\frac{3}{4}$. Since my



strips are 2 inches wide, the inside measurements are $12 \times 15\frac{3}{4}$. I tack the wire screen on both sides, so that the bees will not be able to sting thru. I always have a number of these double-screen frames on hand.

Over the colony to which I wish to unite one or more colonies I place a screen, then the hive to be united, of course first removing the bottom of the upper hive. If another colony is to be added also, I put on another screen, and then the third hive on top of that, making sure that the upper hives have no outside entrances. The entrance of the lower hive is left open. After putting the cover on top of the pile I leave them this way for three days and nights. The third evening about dusk I lift up the upper hive carefully, just high enough so that some one else can pull out the screens. I always take out the lower one first. In the morning the bees will all be together just as tho nothing had happened.

If I want to do any feeding at the same time, I invert a ten-pound honey-pail having a perforated lid over the frames of the upper hive, placing another empty hive body on top to cover the pail. Of course, since the uniting takes only three days, the feeding can just as well be postponed until a few days after the screens have been taken off.

After the bees are all together I leave the extra hives on for four or five days until the bees have become accustomed to their new home, then shake them off their new combs in front of the entrance and remove the surplus bodies. This plan with me has never failed.

Wabash, Ind.

F. J. Rettig.

Candy the Principal Winter Food.

I have been keeping bees for 35 years in this locality, and I have so much faith in my system of wintering bees that I believe I could be successful in wintering them in Munetaha or Saskatchewan, if I can find a locality where the beeyard would be protected from high winds by a side hill or in a ravine, or any place where high winds do not prevail. I do not feel alarmed because of much snow or heavy frost; for if my double-walled hives or my bee-clamps are buried up in snow, all the better. And in the cellar, if I can keep the temperature between 40 and 45 I have no fear whatever.

I use a great deal of bee-candy in the winter. I experimented on bee-candy for winter for 35 years, and I find it better than any other substitute for honey, as the bees have less dysentery. My outside bees have had a very few cleansing flights, and yet show very little spotting of the hives. I feed in the open air, spring and fall, 8 rods from the beeyard. I also feed artificial pollen in the spring till the willows and dandelions are out, then I dispose of artificial pollen.

I hear much about robbing; but I have had no difficulty along that line for the last 15 years. It is the careless beekeepers that have that bother. My correspondents frequently ask me why their bees die and leave lots of honey in the hive. There are many different reasons for that, but time and

space do not permit me to explain. Study the weather in the locality. All localities are not the same. The fall, winter, and spring management that might suit my locality might not suit yours, and yours might not suit mine.

Port Elgin, Ont.

Geo. Guyer.

Letting the Bees Leave of Their Own Free Will.

My method of taking off comb honey does not include the use of bee-escapes. When there is a honey-flow I simply give a few puffs of smoke in the top of the sections to rid them of the majority of the bees, and then I lift the super off from the hive and set it down on the shady side of the hive with one end on the ground and the other end against the side of the hive. This permits a circulation of air thru the sections, and the bees will leave it rapidly.

I continue in this manner until I have taken off about 500 lbs., when those which were taken off first will be practically free from bees.

The sections are then taken from the section-holders and conveyed to the honey-house or any other place used for their storage.

When there is no honey coming in, this work will have to be done in a different way; however, the difference is slight. The honey is taken off, and the super put down on the ground at one side of the hive with the corner of the super about four inches from the end of the alighting-board, and a hive-cover put over it.

I now continue taking off honey in this manner as before until a few hours have passed, when the bees will leave the super under the cover, and robbers will not bother if the operator is careful (this method applies to telescope covers). When the bees have left the sections the operator can take the honey from the section-holders.

Sometimes during unfavorable weather the bees will not all leave the sections within the usual time, but they will collect in one corner of the crate and give no trouble in getting them out.

In my opinion this method surpasses the use of bee-escapes and all other systems in the matter of saving time when it comes to taking off comb honey; and I think others, upon trying it, will favor it likewise.

Roxbury, N. Y.

M. E. Ballard.

Wintering a Teacupful of Bees in a Single-walled Hive.

Mr. Editor:—You tell Samuel K. Johnson, Dec. 15, that he will have to sacrifice some of his queens if his colonies are not strong. On account of a scourge of American foul brood a few years ago, and a hurry-up effort since then, I have had no little experience with colonies that were not strong. I have wintered bees that clustered between only two self-spacing Hoffman frames, and they were as strong, apparently, when they came

out of winter quarters as when they went in. These frames had drawn combs which were about half full of capped honey on the side next to the bees. I think I can winter a teacupful of bees in a single-walled hive out of doors.

Last winter I had seven very weak colonies in one row "heeled in." The hives were set close together, covered on the top and back with chaff, with about one foot of dirt on top of the chaff. The fronts of the hives are toward the south, and are exposed. On December 22 the bees had a flight and were out almost to a bee. I have never seen any mixing.

I have other colonies covered with chaff and boards, and others with chaff and dirt to the eaves. The front of the hive, however, is always exposed. So far I have had no loss in wintering weak colonies in this way. The weaker they are, the more I "heel." On warm days when there is snow on the ground, I stand a board in front of the entrance.

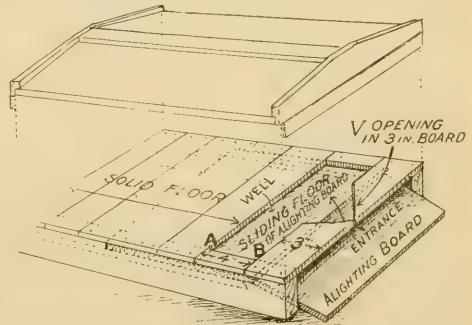
Don't sacrifice any good queens because your colonies are weak, for, wintered this way, they build up fast in the spring.

Westfield, Ind.

A. L. Beals.

Floor-board with Adjustable Entrance under the Hive.

A short time ago some one described a floor-board which provided an entrance under the hive, and thus entirely eliminated the porch. The only notice taken of it was by one beekeeper who said that an entrance under the hive could not be watched against clogging-up, etc. I will describe the board I invented some years ago and still use.



The main floor of the hive is composed of boards of the right length nailed across battens on edge, say three inches by one. The front board is only three inches wide, and between this and the next is a space of four inches, after which the boarding to the back is solid. Of course the "well" thus made is protected at the sides by pieces of the same thickness nailed on to the battens. The front board has a V-shaped piece cut out from the under side to half its width, the point of the V to the front. The alighting-board slides close under this floor on ledges nailed to the battens.

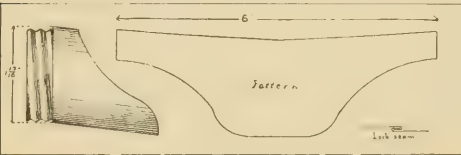
When the alighting-board is slid right up to the front of the V-shaped groove, there may be an entrance of only a bee-space. As fast as it is slid back the entrance widens, till a slit is uncovered in the well itself; then that slit deepens till there is an entrance of fifteen or sixteen inches by four. It is quite easy to make the draft great by day and less by night by going to the back of the hive and pushing the alighting-board forward or pulling it back by means of a suitable handle nailed to its under side.

G. G. Desmond.

Sheepscombe, England.

Handy for Emptying Cans.

No doubt every one who handles extracted honey has experienced difficulty in pouring from the sixty-pound can, or any can, for that matter. I have overcome that difficulty for myself by taking a spare easy-fitting screw-cap, and, after cutting out the top, soldering to the band thus produced a tubular spout about 2 or 2½ inches long. To cut the top from the cap, file the edge all around until the parts will separate without using force. The greatest care must be used not to bend or spring the band out of shape. The piece for the spout, when cut out and ready to be rolled up, will look something like the sketch pattern. Bend the tin around



a piece of wood, but don't use the band, as the spout must fit the band without strain. The ends of the piece should be locked together and soldered before attaching to the band. There is no trouble in locking the ends—just turn the edges as seen in the cut, and drive the seam down close. (The spout might better be fitted to the cap before cutting out the top.)

When the spout fits easily and nicely the two may be soldered together. The best plan is to cut and fit a stiff paper pattern, by means of which the tin may be marked out just right with least trouble. A tomato-can will furnish the material and an old pair of shears will do the cutting. Any one who can do soldering can thus easily provide himself with this great convenience.

New Jersey.

C. D. C.

Woolly Buckthorn as a Honey-plant.

I am sending a honey-plant. My brother-in-law gave it to me for hogs. Hogs seem to like the haws, but I have not paid any attention to the tree until this week, or, rather, I had not thought much about it. It is in bloom now, and you will see that it is a heavy bloomer, and it bears accordingly. The berries are about the size of a black-

gumberry, and have a seed like the black-gum. But the bees around this tree put me to thinking of the probable value of this tree. I never saw so many bees about anything except a honey-tub. The tree is about 10 feet high, with a heavy top.

I want you to advise me as to planting a grove of them for bees. I believe they would be good for hogs. They seem to like them any way, but I don't know that it would pay as a hog feed; but if they are good for honey and hogs, I think it would pay to plant. I brought the tree from Florida.

Groveland, Ga.

T. E. Sullivan.

[This was sent to our botanist, who replies:]

This shrub or tree is woolly buckthorn, or *Bumelia lanuginosa* (Michx.) Pers. It is widely distributed in the woods of Florida, Georgia, and other southern states. It belongs to the sapodilla family, or Sapotaceae, the species of which are largely found in the tropics. Plantations of this tree for honey only would probably not be profitable. The cost of the land, the expense of planting, and the long delay before there would be an abundance of bloom, must be considered, assuming that the species is suited to the soil and climate. Experiments in planting trees and shrubs as honey-plants might well be made by state governments or wealthy individuals, but experience would seem to show that they are not advisable for those dependent on their farms or apiaries for a living.

Moreover, in Georgia there is, according to J. J. Wilder, a large area covered with gallberry bushes which is only partially occupied by beekeepers. He says it is difficult to overstock a gallberry region. Would it not be better to locate in such a section of the state, where a crop of honey could be obtained immediately, rather than to plant trees of the woolly buckthorn for some indefinite future time? As to the value of the berries as food for hogs I am unable to speak.

John H. Lovell.

Waldoboro, Maine, July 24, 1916.

A Brand-new Idea for a Profitable Ad.

I caused the following to be printed in local papers, and had a copy of it, with many recipes calling for honey, to be sent to every school in the county, the county superintendent helping me by volunteering to send out the circulars with his own mail, to the teachers.

PRIZE ESSAY.

To the Crawford County school child under sixteen who sends me the best essay on *honey* I will send a gallon of *Bonney Honey*, postage paid, as a free gift. The teacher must certify to the article. Time limit, December 15. The winning essay will be printed in the county papers.

DR. BONNEY, King-bee.

The Buck Grove Apiary, Buck Grove, Ia.

It has been but two weeks since I commenced this, and I have already got results. I think it is going to prove a very profitable advertisement.

Buck Grove, Ia.

A. F. Bonney.

There are Goldenes and Goldenes.

I have been amused at the different opinions of golden bees as expressed in the recent discussions in *Gleanings*. As is often the case, the parties who disagree are talking about different things. There are two well-defined races or strains of golden bees which are frequently confused. One strain, in its purity, is very gentle, very lazy, raises little brood, but feeds the larvæ liberally. This is the race beloved of the queen-breeder. The queens are a beautiful golden in color, but usually rather small. The other strain is active and energetic, but usually vicious in temper. Both strains are generally good finishers of comb honey.

I tried for several years to get a good strain by crossing the two that have been mentioned, and succeeded in getting a few queens that were satisfactory. But their descendants mostly turned out common three-handers, or reverted to one or the other of the parent races. As I was not raising queens for sale I gave it up and returned to the common Italians.

The term "golden," as applied to bees, is a very indefinite one. The race can be kept true only by close inbreeding; and the closer they are inbred the more strikingly their defects appear. The wide difference in price between untested and tested queens as quoted by breeders of goldenes shows the difficulty of breeding true.

I worked for one breeder of golden queens who had requeened every hive in his mating range with daughters of the same queen. The result was a very beautiful and gentle race, which made a fair showing in honey when no other bees were present for comparison. But in other apiaries, where his queens were introduced I find them invariably the poorest.

Newman, Ills.

C. F. Bender.

Broodless Cell-Building Colonies.

Mr. Pritchard advises A. W. Kuenzli, in *Heads of Grain*, July 15, that only capped brood be used in cell-starting colonies, and that it be used for only a very short time lest laying workers get to be a nuisance. Mr. Pritchard has had more experience than I, but I am convinced he is wrong. Why keep any brood at all in your cell-starter after first dequeening it? No better cells will be built. The colonies I started with this spring are still queenless, and still starting the finest cells I could want. Besides, my cell-starters are very good surplus-honey colonies, having yielded about 150 pounds of extracted honey this year.

I can't afford to have backward colonies all over the yard by dequeening and requeening later. I can't afford the fuss. If you will shake a frame of young bees into the starter every other day they will build the finest cells, laying workers will never trouble and they will develop a field force that will put up a lot of honey in the frames of the hive. Note that I am talking of starters,

not builders, as Mr. Kuenzli seems to have the two confused, also that I could name some of the biggest breeders in the country who use my plan. I am surprised that a company like the Roots, with their efficiency, could tolerate a lot of colonies dequeened and requeened in a few weeks to build up for winter only, giving no surplus.

Plainfield, Ill.

Kennith Hawkins.

Natural Swarming Without Much Increase

The honey season has been good here this year, but my bees did lots of swarming. When I got all the swarms I wanted for increase, I returned the swarms to the parent colonies; but in most instances they swarmed again the next day. Then I gave them to other colonies, which had swarmed a day or more before, and it worked fine. They stayed and worked just as hard as swarms hived in empty hives. At first I was afraid the bees would fight, but they never did.

I hived the swarms in store-boxes. Sometimes, when several swarmed at the same time, I had more than a bushel in one box. The next morning before sunrise I shake them out on cloth-covered boards, set slanting to the entrance of the colonies I want to strengthen. I give about 5 to 7 lbs. of bees to each colony.

When the swarming season was over, from 105 colonies, spring count, 97 were strong and 8 weak (those which swarmed last); and besides this, I had 32 new colonies. Until today I found only two of them queenless. I got about 8000 lbs. of comb honey.

I like this way of swarm control better than anything I have ever tried before, and I expect to practice it again next year. I would not try it in a season when there is not a good honey-flow; but when the bees don't get much honey in this locality they don't swarm much.

Fred W. Wenke.

Pender, Neb., Sept. 13.

Honey Saved My Baby's Life.

He was eight months old, and starving. I put honey in his milk.

We also gave it to our oldest daughter when she had typhoid fever. Milk, honey, and oatmeal, was all she ate for weeks.

I'm a great lover of honey. When available we use 800 to 1000 lbs. in our family. The keeping of a few bees is very little work, and we often sell that much.

Star, Okla.

Mrs. Ona Foliart.

How much corn syrup is necessary, when put in honey, to prevent it from becoming candied?

Ogden, Utah. Ogden Bee & Honey Co.

[We do not know of any one who is mixing corn syrup with honey to prevent granulation. Such a mixture could not be sold as honey under the national and various state food laws. The corn syrup would not accomplish the desired result without interfering with the flavor.—Ed.]

GLEANINGS FROM QUESTIONINGS

J. A. C., Ohio.—Is there any advantage in using acids in making sugar syrup for winter?

A. Yes and no. Some regard it as necessary, but we have fed up our bees without the use of acids in the syrups, for many years. The purpose of the acid is to invert the syrup, making it more like natural stores. If we could, by some artificial means, add protein or pollen, it would be better.

W. A. C., Ohio.—Why is bee-glue so abundant and sticky in the fall?

A. When bees have nothing to do they will gather gums and resins. It is their nature to chink up cracks and crevices in their hives to make them warm; therefore in the fall they will gather propolis and deposit it thruout the hive. New bee-glue is more sticky than old, and hence one notices it more in the fall than at other times of the year, simply because of its sticky nature. As the weather turns cold it hardens so that the frames are glued together. At such times it is necessary to use considerable smoke in separating the frames.

E. S. L., Jenkins, Ky.—What is honey-dew?

A. Honey-dew is a secretion from plant aphids. It is a sticky, sweet-tasting liquid that adheres to the leaves of the various kinds of trees on which the plant-lice work. It is something of a calamity when the bees gather very much of it, for, strictly speaking, it is not honey and cannot be sold as such. The flavor is often quite bitter, and the color cloudy and dark instead of clear. Some years much more of it is gathered than others. The year 1908 in many localities was noted for the large amount of honey-dew stored in the combs.

V. I. S., New York.—When is the best time to unite for winter?

A. The best way is to put the brood together in August and September; but if the matter has been delayed, the bees of two different out-apiaries may be united without any returning. Two weak colonies in the same yard side by side can be united by taking away one hive and placing the other between where the other two stood.

Ordinarily it is not practicable for beginners to unite bees of the same yard, on account of bees returning to the old stand; but it can be done. Wait till cold weather comes on after the first two or three frosts, and when all the flora is killed; then early in the morning place two clusters together. If the weather continues cool or cold for several days, not many bees will return to the old stand.

A. C. W., New York.—How old should a queen be to get the best results in wintering?

A. The younger the better. The one and two year old queens are apt to diminish egg-laying, sometimes stopping altogether during the latter part of August and fore part of September. The result is, their bees go into winter quarters too old to give the best results. It is desirable to have brood-rearing in August and September so that the hives will be filled with young bees in October and November. To that end young queens should be used, as they will lay right on. After breeding up in this way the colonies will need to be fed thru September and October with a syrup consisting of two parts of sugar to one of water. As the weather becomes cooler, the syrup should be made thicker—2½ parts of sugar to one of water.

A. B. C., Pennsylvania.—I have heard it said that windbreaks are very important for outdoor wintering. My bees are located on top of a hill where the wind strikes them from all directions. Will large quadruple winter cases with four inches of packing afford sufficient protection?

A. You had better by all means move the yard into a protected location 1½ miles from its present quarters. When cold weather comes on you can move the bees a distance of a hundred yards or so. We not only advise plenty of packing, but windbreaks in the form of trees, shrubbery, outbuildings, or natural barriers like a hill.

Placing an apiary at the foot of a hill without shrubbery does not always give satisfactory results. The wind will sometimes pass over the top of the hill, dive downward, and hit the hives with almost the same force as if they were on top of the hill.

X. Y. Z., New Jersey.—One of my colonies that was as gentle as kittens during the summer now seems to be very cross. What is the reason? The last time I handled them they stung my hands and clothing, and actually drove me out of the apiary.

A. If you handle the bees early in the morning, when the propolis is hard, and the frames come apart with a snap, you will be badly stung unless you use plenty of smoke, no matter what the strain of bees. Wait till the middle hours of the day, and use just enough smoke to keep the bees down. If you separate the frames when the propolis is soft you will have no trouble. Generally bees are crosser in the fall than at other times. A colony that has been gentle an entire season, even during summer, will sometimes be very ugly when the hive is opened. When there has been a heavy honey-flow, and it suddenly stops, all the bees in the yard will be more or less cross. It is advisable to avoid handling them more than is necessary before they get over their ill humor or disappointment, because the sudden flow of wealth (honey) has been suddenly cut off.

A. I. Root

OUR HOMES

Editor

Oh how I love thy law!—PSALM 119:97.

I was glad when they said unto me, Let us go into the house of the Lord.—PSALM 122:1.

Forsake not the assembling of yourselves together.—HEBREWS 10:25.

During our pastor's vacation a stranger occupied the pulpit. He also was on his vacation, and told a little of his experiences. A part of his sermon concerning church attendance took a great hold upon me. I have several times before mentioned that when I started out to serve the Lord, in answer to the question if I should be put down as a visitor to the Sunday-school or at our regular services I replied, after considering the matter briefly, "Brother Thompson, God helping me I am going to be a regular attendant at our Sunday-school the rest of my life." This statement was made before a pretty good-sized Bible-class; and I did not realize until afterward what it meant. But I did realize that it included attendance on the preaching service as well as the Sunday-school; and may the Lord be praised that I cannot now recall having failed to attend church at least *once* every Sunday, when it was reasonably possible to do so; and I cannot begin to tell you what a benefit it has been to me for the last forty or fifty years.

This being the case, you can readily imagine how it pains me to hear people excuse themselves from going to church. They are "too tired;" they "do not feel like it;" "the weather is too hot;" "the weather is too cold;" "it is too rainy to go out," and no end of other and similar excuses. Many times I have said to near and dear friends after the sermon was over, "O my dear friend, you don't know what you missed by being absent today. In fact, I should not be surprised if you have, by staying at home, missed one of the best sermons of your life," etc.

Here in Medina we have a talented, up-to-date young minister. His sermons are always listened to. If anybody ever went to sleep while he was preaching, I did not know it. We are also paying him what a good many people think is a pretty good salary; and yet these same persons who contribute, perhaps quite liberally, to the salary, voluntarily stay away. They do not hesitate to make business arrangements that keep them away on Sunday. Sometimes they tell me they attended some other church while away; but too often I find they did not go at all. Sometimes the whole family go on an outing, perhaps to their summer home on the lake. When they get

back I ask the question about church and Sunday-school. With the automobiles that are now so common there is but very little difficulty in finding a church and Sunday-school sufficiently near by here in Ohio. But again and again I am pained to hear they were too tired with the busy cares of the week, and that they wanted one whole day of rest. Now, I do not believe—at least I cannot readily agree to the statement—that anybody *rests* better by staying at home reading papers and magazines, dozing, etc., than by going to church at least once on Sunday. And then the children—a break in the Sunday-school lessons means to a child that it is not so very important that he should be on hand at Sunday-school.

Some of the excuses I have heard are that the church near by is behind the times. One party who went to church (I think a good deal because I urged it) said the poor minister was so much put out by seeing a crowd of "resorters" who came to his church that he became embarrassed and made awkward work of resuming his sermon; and they gave that as a reason for staying away. It made me think of a reason a young friend away up in Michigan gave for not attending the weekly prayer-meeting. He said it was all "run down," so there were not more than half a dozen in attendance, and that was *his* excuse for staying away. Now, in the case of the young minister who was embarrassed because a lot of town people came in unexpectedly, perhaps in the middle of his sermon, there was a splendid opportunity to grasp hold of the good points in his talk, and, after the sermon was over, take him by the hand and give him a little encouragement that you could do honestly. I never heard a sermon in my life that did not contain something I could indorse and congratulate the good brother for saying. In fact, I usually do find a place to say "amen" one or more times in almost every sermon. By the way, this reminds me that one excuse of some resorters was that the nearest church to their summer cottage was one where the sermon was preached in German. Well, my advice is to go and hear a sermon preached in a language you do not understand, rather than not go at all. You can listen to the singing and enjoy it, for, thank God, music is a "universal language" understood by every tribe and every nation. Yes, even the domestic animals appreciate and enjoy music, as you may have noticed.

Now, after this somewhat lengthy introduction, listen to the good brother while he tells you about some people who were too busy to attend church on Sunday, or perhaps "did not feel like going." By the way, my experience is that the time when I do not feel like going to church or prayer-meeting is the *very time* when it is most important — perhaps I should say most *vital*ly important—that I *should* go.

Here is the sermon, friends. I wonder if you can afford to say amen as you read it; and it would gladden my heart if you would put the amen on a postal card and sign your name to it. You can send a postal card also to the good pastor if you like.

SERMON PREACHED AT MEDINA, O., JULY 16, 1916,
BY REV. C. L. PARKER, OF THE KINSMAN-UNION
CONGREGATIONAL CHURCH, CLEVELAND.
"THE JOY OF THE CHRISTIAN."

Restore unto me the joy of thy salvation.—PSALM 51:12.

This is the first time I have ever been in this church, and yet I have known it for the past twenty-five years as a church that has been taking obscure and unknown young men for its ministers, and in a few years turning them out as men of national reputation and influence.

I have been helped and encouraged thru all these years of my ministry by a recital of your kindness and helpfulness to one young man, a former pastor, who here grew to be a man able to take a position of national service and influence.

I do not come to you with a message as helpful in return as you have been to me; but I am sure I can, in good Methodist fashion, relate an experience. Sometimes it does not take a great deal of brilliance to do that; and yet sometimes it may do a great deal of good.

Last week it was my privilege to spend the week end on a visit to an uncle, aunt, and cousin who live in a small town noted thru the past hundred years for its churches and religious life. On Sunday morning I began to inquire as to the probability of our going to church. My uncle said he was slightly deaf, and usually went to sleep in service, and so felt ashamed to go. My aunt and cousin said that they had been so busy thru the spring season that they had not had time to supply and provide themselves with suitable clothes to wear to church.

So I asked to be excused, and went to church alone. I decided to go with my eyes open, not as a critic, but to learn what I might of conditions in that town. This is what I saw: The nearest neighbor of my uncle's was hoeing in his garden; the next one was hauling hay; the third one was shaking out some hay that had evidently just been mown that morning. A little further on was a banker who had recently purchased a chicken-farm. He was working with his chickens when I went and when I returned. A little further on was another farmer picking cherries. At church there were twenty men and forty-two women.

The sermon was a very good one, but might have been preached at any time in the Christian era as well as on that particular occasion. Evidently in the preparation, purpose, or delivery of it, the preacher had no thought of the conditions which I had observed along the way to church.

But the text was a good one. It was a prayer to live by. I resolved to make it mine thru the week, "Restore unto me the joy of thy salvation."

Now, joy is somewhat comparative. We rejoice sometimes in severe trials, thanking God that our

lot is no worse. So I set out to find whether my life as a religious man compared favorably in its happiness with those whom I saw "too busy" to go to church on Sunday. What was the fruit of their lives? Was it superior to the happiness I am finding in the "joy of my salvation"?

I began to inquire, discovering these facts: The man who was hoeing in the garden lives alone. He had a sister in the same town who "lives alone." They both live that solitary life, for each other's mutual happiness. Another man was having trouble with his wife. A third one had lately failed in business. The banker was having a terrible row with his mother-in-law. It takes something besides a bank and a chicken-farm to make a man happy, particularly if he has a perennial quarrel with his mother-in-law. The other man has a drunken son. "Restore unto me the joy of thy salvation, O Lord." We never had property enough to quarrel over; but, thank God for a Christian sister to occupy our parent's home, so that it continues to be home to us all. Thank God for a wife who, by her Christian forbearance and self-control, contributes to the "joy of salvation" which she knows very well.

Thank God for seven sons, no one of whom has ever drank or smoked, who, we feel, are not only saved but safe, because they have Jesus Christ in their hearts. We have neither a "bank" nor a "chicken-farm," but we have a mother-in-law whose heart Christ has touched, and whose presence in our home is a benediction to us all.

All these are the "joys of salvation." I pray, "O God, make me as glad as I ought to be for thy salvation." But if I am going to pray this prayer I must be willing to do my part in a happy life. How may I live a happy life? What is my part? I recalled Alice Freeman Palmer's answer, probably familiar to us all. When challenged by a child of the North End of Boston to tell a company of children how to be happy, she told them to do three things every day: 1. Learn something good every day; 2. See something beautiful every day; 3. Do some kind act for somebody every day.

Time fails me to recount all my experience in carrying out these rules; but suffice it to say that they were exceedingly helpful. I learned something that will contribute lastingly to my happiness. From Dr. Worcester of "Psychotherapy" fame, I learned that nobody ever gets a roseate view of life between midnight and three o'clock in the morning, so I resolved not to castigate any of my delinquent church members during those hours when a Christian ought to be asleep. From Dr. Fosdick I learned that Jesus was not only a "man of sorrows," but he was also a most joyous person. The "joy of salvation" is the joy of dwelling with Christ, making him a resident of our homes, a companion in our journeyings, a partaker of all our experiences. But also these things included bearing fruit. Four times he speaks of this. Our lives are to find their type in your berry-fields, just now giving their bounty: your cherry-orchards, bearing their luscious fruit; your vineyards, fragrant in the autumn with the perfume of their vintage. Paul called Timothy and Titus and Philemon and the slave Onesimus "fruit" which he had from the Lord. So we have a joy and crown like Paul's by bearing fruit for him.

But, again, among the things that Jesus spoke unto his disciples for their joy was that they should love and be loved in return. "As the Father hath loved me, so have I loved you; continue ye in my love." The joy of Jesus' own life was in the fact that over him and round about him, like the very atmosphere he breathed, broad as the sky above him, was the heavenly Father's *boundless love*. It is this that Archbishop French meant when he said:

I say to thee, do thou repeat
To the first man thou mayest meet,
In lane, highway, or crowded street,

That he and we and all men move
Under a canopy of love
Broad as the blue sky above.

That doubt and trouble, fear and pain,
And anguish all are shadows vain,
That death itself shall not remain.

That weary deserts we may tread,
Thru dreary labyrinths may thread,
Thru dark ways underground be led.

Yet if one guide we will obey,
The dreariest path, the darkest way
Shall issue forth the heavenly day.

And we on divers shores now cast
Shall meet one perilous voyage past,
All in the Father's home at last.

And ere thou leave him say thou this—
One word more they only miss
The winning of that heavenly bliss.

Who will not count it true love
In which we all may live and move—
Blessing, not cursing, rules above!

And one thing further make him know,
That, to believe these things are so,
This firm faith never to forego.

In spite of all that seems at strife
With blessing and with cursing rife,
This is blessing, *this* is life.

The poet has the right of it. He lives most who
loves most and noblest, and his love promotes his
everlasting joy.

Restore unto me the joy of thy salvation; that is,
restore unto me a consciousness of thy presence—
power to bear fruit unto him, and a love spirit that
loves itself in seeking to love as he loved.

I was pretty sure when I listened to it
that the good brother could not write it out
exactly as he gave it. If I am correct
about it he had no notes, but gave it off-
hand. My recollection is that when speak-
ing of the banker with his chicken-farm he
said something like this:

"Brethren, a bank and a chicken-farm,
no matter how extensive, do not make a
man happy who is in a jangle with his
mother-in-law."

May God be blessed for the above mes-
sage; and may it awaken a lot of the read-
ers of GLEANINGS to the importance of
standing by the pastor of your church,
giving him encouragement and a helping
hand as he delivers his message from the
great Father of us all.

"WHAT WOULD JESUS DO?"

Dear Mr. Root:—In GLEANINGS for January 1
you publish a letter by Mr. Sheldon, author of "In
His Steps," answering President Wilson's challenge
that any man who differs with him on the question
of preparedness shall make it clear "how far and
in what way they are interested in making the per-
manent interests of the country safe against distur-
bance."

If I understand Mr. Sheldon's position he differs
with the president, first, because he "has not named
a single country that threatens us with war." In

spite of such being the case, is it not reasonable to
assume that, when he adopts any course that con-
cerns the welfare of the country, he must have
strong and sufficient reason for doing so—especially
since he has used all the acumen of a trained, scho-
larly, practical mind to avert war, and with a will
of iron and a noble patience and steadfastness un-
der recrimination, sneers, and ridicule, has succeed-
ed in keeping us out of an imbroglio with Mexico?
Events have justified his far-sighted policy with re-
gard to our neighbor. We find his judgment was
good when he opposed intervention; can we not
trust him when his decision is for preparedness in
self-defense?

The fact that we are in friendly relations with all
the world now is no guarantee that we shall con-
tinue so, and doubtless the President has informa-
tion which it would be neither politic nor safe to give
to the general public with hypnated spies on every
side ready and eager to frustrate the plans of our
government. Would it not be folly for our Presi-
dent to name any single nation whose designs he
may have reason to suspect, however friendly it
might appear at present, until such a power had
given proof of its intentions?

Mr. Sheldon states that the money asked of the
people (for their own defense) for warships and
other necessary means of defense would answer the
same purpose if expended on education, mission-
aries, and prohibition. It takes years to educate
the people, Christianize the country, and carry thru
the prohibition measure. Suppose while this money,
instead of putting the country in a state of defense,
were used for these purposes, our land should be in-
vaded. Would education, religion, or sobriety repel
the invaders?

Several years before the present European war
broke out, a writer of one of the foreign powers
published a book stating that the next war (this
present war) would be fought along the lines that
it has followed, and would include in its plans an
invasion of the United States.

Mr. Sheldon speaks of "Christianizing Europe
after the great war is over." The great war is not
over, and no man can tell where it will spread;
moreover, European nations consider themselves
Christianized already. Does not the kaiser tell his
troops continually that God is with them, and will
give them the victory? As to the means he proposes,
what does any reasonable being suppose would be
the reception of "a party of our best young people
sent over" to any one of the European powers for
the purpose of Christianizing them? Yet this is Mr.
Sheldon's practical(?) plan after the war is over.
Even Mr. Ford, in his good ship "Fol-de-rol," is
more practical—enough so, at least, to try to do
something now when it is most needed.

As for our country's self-defense being "contrary
to the spirit of Christianity," and as to what Jesus
would do now, not after the war is over, with all
the disasters it may bring even upon us, this is
what I believe the Master would do: He would say:
"Under the old dispensation my Father helped his
people in their wars against the heathen that the
oracles of God might be preserved—the oracles that
foretold my coming and the regeneration of the
world. I am come. In this land that I have given
you, where worship in freedom the oppressed and
enslaved of all nations; in this land where spirit
may expand and rise to noble heights under free
government; where hearts throb quickest in sym-
pathy, and full hands are held out most readily to
those suffering under the world's great disasters,
you confess me in word and deed; this land defend.
Let no barbarous flag proclaiming Old World stan-
dards of injustice and slavery supplant its star-
spangled banner which leads all nations in freedom
and brotherly love. Defend it; and he that loses
his life shall find it."

Canutillo, Tex., Jan. 31. MRS. O. N. TURNER.

HIGH-PRESSURE GARDENING

CORN, ALFALFA, COWS, SWINE, AND "BEES."

We clip the following from the *Alfalfa Journal*:

AN IDEAL FARMING COMBINATION.

Did you ever try to figure out what the ideal crop and livestock combination would be to make you the most profit? Here is a suggestion: Corn, alfalfa, cows, swine, and bees.

Figure on this proposition a little and you will see that the corn and alfalfa will supply all of the feed necessary for the cows and for the swine. Put part of the corn into the silo, husk part of it, and grind it for feed. Use the alfalfa hay for the cows and also for the hogs. Use the pasture for both kinds of stock, but, of course, be careful in pasturing the cows.

To keep the soil in proper condition, about every five years switch the crops. Plow up the alfalfa and plant corn. Then sow alfalfa on the corn land. Wonderful yields will be the result, and real prosperity will be yours.

The bees are a side line, raised much too little. They will thrive on the alfalfa field. They board themselves, cost nothing, but make you good profit. There is always a good demand for honey, and honey is a mighty good food to use on your own table. Think it over carefully, this ideal combination: Corn, alfalfa, cows, swine, and bees.

The part of the above that hits us particularly is bees; and just now I wish to say something about alfalfa honey. Last evening I saw on Mr. Calvert's desk about the whitest and most beautiful comb honey I ever saw, and I started to take a section over to Mrs. Root; but before I got there I had a mishap, and a section was crushed. Mrs. Root stood out on the porch, and I called to her to get a dinner-plate and spoon in "double-quick" time. Well, the honey was so thick, and Mrs. Root is so "spry" (even if she was 75 years old on the 12th day of August) that we got the greater part of the honey before any could be wasted. Altho the thermometer on the porch indicated close to 90, this beautiful white honey, almost water-white, was so thick that it hardly ran out of the spoon when turned upside down, and the taste was simply delicious. Mr. Calvert thought the source was alfalfa and sweet clover mixed. And, by the way, I have just made a new discovery. Good thick honey is ever so much better with *oatmeal* than any sugar ever invented. My breakfast was principally oatmeal cooked a long while so as to be digestible; plenty of cream, and this delicious alfalfa honey. To my great surprise my strength and endurance held out "amazingly," clear up to dinnertime. Then I had some more of the same honey for dinner—all I wanted; and now, altho it is almost suppertime, I am feeling fine, even if I have not had my usual outdoor exercise.

The moral to all the above is, have some

alfalfa, if you have not any already, and have some bees if you have none already; and just now I am reminded that there is something else I had with my delicious breakfast. It was a cupful of milk right out of the refrigerator. You may have your tea and coffee, and everything else along the line of drinks; but give me some good cold milk together with oatmeal and honey.

"THE RICHEST BODY OF LAND UNDER CULTIVATION IN AMERICA."

Our readers will naturally wonder *where* this wonderful piece of fertility is located. Well, it is claimed to be down in Florida. Now, please do not imagine that *all* Florida is that way; for no end of people have gone to Florida with fond anticipations in the way of growing crops, and have been grievously disappointed. The clipping below, from the Jacksonville *Times-Union*, tells you all I know about it:

Ocala, a town of 5,000 or 6,000 progressive citizens, is very properly termed the center of the agricultural and stock-raising section in Florida.

What is, without doubt, the richest body of land under cultivation in America is located about fifteen miles southeast of Ocala, in the abandoned river-bed of the Oklawaha River. This property is known as the Young & Ford farm, personally owned by Messrs. Young & Ford, and is for the first time this year planted on a large scale to corn. An elbow in the course of the river has made it possible for this tract of land to be drained. A canal has been cut from each point of the elbow, and the river course diverted into this canal. The old river course now serves as a drainage for these lands, and the lateral ditches are drained into the old river-bed. A dike is formed at one end, and not only drainage obtained, but by the manipulation of the dike during dry weather water can be placed back on the land for irrigation purposes.

The soil is simply the decayed vegetation of centuries. It ranges from twenty to forty feet deep of solid muck. When drained it is accessible for cultivation with either mules and plows or tractors, and it is sufficiently porous to take off rainfall without discomfort or interference with the crops.

Last year from four and one-half acres planted to corn an average yield of 142 bushels of corn per acre was obtained without the application of any fertilizer. This year 1100 acres is solidly planted to corn which averages over the entire acreage better than 100 bushels to the acre, all without any commercial fertilizer. It is a sight to behold! The cornstalks stand in almost solid mass from twelve to fifteen feet in height, and the quality of the corn is all that could be desired.

On page 755, Aug. 15, I told you of a 500-acre cornfield that they thought would grow 45 bushels to the acre; but the above clipping discounts that cornfield more than two to one. Just think of it—1100 acres growing more than 100 bushels to the acre! As the locality is not very far from our Florida home, I will try to get some further particulars in regard to it later on.

THE CORN CROP IN FLORIDA.

It sounds a little funny to talk about Florida getting a good corn crop and shipping it up north instead of being obliged to send to Ohio or away off west to have corn to feed to the chickens. On page 755, Aug. 15, I spoke about the possibilities of corn-growing in Florida. Below is a clipping from the Jacksonville *Times-Union*:

FLORIDA BECOMES A GRAIN-EXPORTING STATE THIS FALL.

For the first time in history, Florida is to become a grain-exporting state this fall. The corn crop of Florida this year is larger than ever before. From the crop reports it is believed that several thousands of bushels of corn will be sent north and east this fall.

SELECTING EARS OF SEED CORN FOR NEXT YEAR'S PLANTING.

For several years past I have made mention of the way I pick out desirable ears in our cornfield. I have been in the habit of picking the ears as soon as I could find desirable ones sufficiently hard and mature so the husks would be dry; and by selecting the first to mature, season after season, I have succeeded in shortening the growing season quite a good deal. I was wondering whether I should keep on doing this. I have always been in the habit of getting ears that were the first to hang their tips downward; and while wondering whether I should continue doing this I wrote to our

Ohio Experiment Station. Below is their reply:

Mr. A. I. Root:—Director Thorne has handed me your letter of Sept. 14. Regarding the selection of seed corn, let me say that it is an advantage to choose ears that point downward at the tip. They are much more likely to furnish good sound seed, for the water will run off the ear instead of endangering it. Ordinarily one should select the earlier-maturing ears. The exception would be in the case of a very early variety that one wanted to render a little later. C. G. WILLIAMS, Chief.

Wooster, O., Sept. 15.

Perhaps I should explain again that, instead of getting my choice seed from a stalk that was the only one in the hill, I made the selection of a good ear where there were three or four stalks in a hill, in order to get a strain that would make a good big growth of ear in spite of competition. Then I tried to select ears with regular even rows instead of those with rows running zigzag, criss-cross, etc. I also used the ears having the corn clear down over the tip, etc. As a result, after having just traveled in the cars and in automobiles pretty well across the state of Ohio from north to south I have not found a cornfield that I thought equaled ours. Perhaps, however, I should add that, in getting this beautiful field of corn, we plowed under a pretty rank stand of sweet clover. It is another score for sweet clover for bringing up the fertility of the land.

POULTRY DEPARTMENT

SHIPPING CHICKENS BY EXPRESS.

On page 375, May 1, I mentioned sending nine chicks, three weeks old, and six one week old, from Bradentown, Fla., to Medina, for 69 cents. I have since then thought best to tell you how I did it, and have every chick come thru bright and lively. The picture on p. 879, last issue, shows how I arranged a common market-basket so as to make a light package.

Had the chicks been only a day old they could have been sent in a much lighter package, as no feed nor water was needed; but the three that were three weeks old were pretty lively; and as the weather was liable to be cool, especially at night, I put a division-board in the middle of the basket, and had their sleeping-room padded with cotton batting all around and overhead. If they got too warm in the middle of the day they could go over into the "dining-room." A large-mouthed bottle I planned to hold water enough; and their feed, mostly wheat, was scattered about the basket, with sawdust to absorb their droppings. One reason

why the express charge was so low was the lightness of the package. I have before mentioned that, as it took *four* days instead of two or three, as I had planned, they were out of both feed and water; and they were so hungry that they bit at my fingers when I let them out; but some warm bread and milk soon set them to rejoicing.

When my nine chickens got large enough I found there was one rooster among the three oldest ones, and one among the six younger ones. As a matter of course they soon began to quarrel. When the younger one was nearly four months old I put him in the same basket (taking out the partition), and sent it back to Bradentown. Well, the charge this time was 85 cents; but I suppose it would have been cheaper had I not put the value of ten dollars on the shipping-tag. The letter below from friend Abbott tells us in what condition they arrived.

Dear Mr. Root:—The cockerel came thru in nice shape. He is "as fine as silk." I have him in a small yard with one hen for company. I am feeding him oats, bran, and wheat, with a very little corn

nights. I will be very careful that nothing happens to him. I hope the pullets and the other rooster are as good as he is.

As to my bunch (about 500 pullets) I am keeping my head above water yet, but it gives me a chill sometimes when I think if they should stop laying and keep right on *eating*. When it comes to that I shall have to feed them honey, of which I shall have 3000 lbs. or more.

Ella says, "Everything you get you feed to those old hens;" but then, we *all* have to eat.
Bradentown, Fla., Aug. 14. D. W. ABBOTT.

Under date of Sept. 1, friend Abbott writes as follows:

Mr. A. I. Root:—The rooster is doing finely. I am still getting eggs enough to pay expenses. The last batch of chicks, hatched in December, are commencing to lay.

Bradentown, Fla., Sept. 1. D. W. ABBOTT.

I used a pint Mason fruit-jar to hold the water for the young rooster, and I fixed a little feed-box across one end of the basket for the feed. Some poultry-netting with one-inch mesh, about the size of the basket, was put clear up under the handles; and

then a strip of cotton cloth connected the edge of the basket to the poultry-netting. To cover the ragged edges of the poultry-netting, a stout wire was put around the outside edge.

DEATH OF "LADY EGLANTINE."

We clip the following from the *Cleveland Press*:

POULTRY WONDER IS DEAD.

GREENSBORO, Md., Sept. 13.—Lady Eglantine, the wonder of the poultry world, is dead. The single-comb White Leghorn laid 315 eggs in her pullet year. She won every prize for which she competed.

This is sad news indeed, not only for the owner but for the poultry world at large. I shall think more of my nine relatives than ever before. And, by the way, is it not possible that Lady Eglantine would have lived longer if she had been "turned out to grass" instead of being petted and fed "Pullman-car" style?

TEMPERANCE

ARE YOU READY TO "STAND UP AND BE COUNTED"?

I think I have said one or more times, do not vote for any man to be put in any office who is not ready to stand up and be counted, and be counted on the side that demands the death of King Alcohol. Election day is not far off, and I am reminded of the matter by the opening article (given below) in the September number of *Good Health*.

PASSING OF A GREAT DELUSION.

King Alcohol is dying.

After a desolating reign of many thousands of years this greatest of all rulers of men has come to his end, and, in the words of Holy Writ, "None shall help him."

For ages the whole world lay in bondage under this merciless tyrant, which trampled to destruction the souls and bodies of men, women, and little children, desecrated every holy shrine of human affection and devotion, paralyzed every noble sentiment and aspiration, transformed the divinest impulses into beastliness, promoted every vice and every crime, every form of disease and depravity, daubed a blot upon the brain of its deluded victims, and filled the world with woe, degeneracy, and despair.

For half a century this diabolical ruler has shown symptoms of senility, and in recent years the trembling hands and tottering limbs of the old monster have shown that his days were numbered.

The magic spell of alcohol is gone, never to return. The brilliant sunlight of modern science has driven away the miasmatic fogs of error and ignorance and the alcohol delusion is exposed as a ghastly festering skeleton, dragged out of its closet.

For ages alcohol has been lauded as a "good creature of God." Today everybody knows it as a demon incarnate, without one redeeming quality.

Medical authorities for ages commended alcohol as a stimulant, an elixir of life; today the united voice of half a million medical men thruout the civilized world declares alcohol to be a narcotic, a vital de-

pressant of no use in shock or weakness, but the very opposite.

The whisky-bottle no longer figures largely in the first-aid outfit, except by its absence.

This magic philter, which has made of millions of domestic paradises veritable hells, peopled with demons, has lost its "spell" over the minds of men. The hoary-headed delusion has passed away, and King Alcohol is tottering into his grave.

Alcohol is already buried in twelve great states that have placed prohibition laws upon their statute-books. A score of other states are preparing to do the same.

In the present presidential campaign the alcohol question looms up larger than ever. The Progressive party put into its platform a prohibition plank. The Prohibition party has nominated Ex-Governor Hanly, of Indiana, to head its ticket, and will make a strong campaign.

Every man and every woman who casts a vote this fall should vote for the prohibition candidate for president if in sympathy with the prohibition movement, no matter how he may vote on state or local issues. This is an opportunity for the foes of alcohol to stand up and be counted. A million votes for prohibition would compel Congress to make the question a national issue at once. If you are a strong partisan in politics, a Republican or a Democrat, then *pair for prohibition*. You will thus inscribe your name among the friends of prohibition and will help in the good work of burying the stinking carcass of old Bacchus—and without impairing your favorite party interests.

Pair for prohibition!

SCANDINAVIANS AND THE LIQUOR TRAFFIC.

Mr. Roy A. Thompson, a beekeeper of Cedar Edge, Col., sends us the clipping below, but does not tell what paper it comes from:

Richard Jones, a Minnesota state senator, and very prominent in union labor circles, made a speech the other night before the Scandinavian Socialist

Club at Superior, Wis. In the course of his address, speaking about the claim that prohibition would throw many men out of employment, Mr. Jones said:

"We are begged not to vote men out of employment; but if a group of men are employed in a business which is destructive to society I would vote those men out of that employment and into something valuable to themselves and their fellowmen. I should like to have a chance to vote 5,000,000 men in Europe out of their present jobs. If this principle applies in one case, why not in another? To advocate peace in Europe would throw thousands of workmen in America who are engaged in the manufacture of munitions of war out of their present employment; but thousands of trade unionists and Socialists are today doing all in their power to spread anti-militaristic propaganda among their fellow-workers."

What would be said of the munitions manufacturer who argued against stopping the war because it would throw so many men out of employment?

What would be said of the workers in munitions factories who would plead for the carnage to continue in order that they might keep their present lucrative jobs?

And yet that is the cry that is raised in behalf of the gin-mills. If the poisoning of the people is stopped, if the saloons don't continue their work of debauchery and their bloody course, those who make profit thereby will have to seek other employment.

This is the argument that has been urged against the abolishment of every infamy that has existed since the foundation of the world.

It is a tough traffic that can give no better reason for its existence than that those who make money out of it would lose some profit by its abolishment!

"BOOZE" AND THE FARM PAPERS.

If there is a farm paper that takes the side of the liquor party, or even accepts a liquor advertisement, I have yet to see it among all our exchanges. Just now the *Country Gentleman* comes out with a suggestive illustrated article. Underneath a couple of pictures we read:

"It is a heap better, and less costly in the long run, to buy gasoline than rum."

In one picture you see a farmer bringing in a can of booze. Besides the wife there is not only a baby in her arms, but frightened children clinging to the skirts of her dress. In the companion picture the farmer has bought an auto. The wife and children are loaded up in it, while the farmer with long strides brings in a can of gasoline. They are a happy crowd, and the great contrast with the other picture points a mighty moral. By the way, I have been for days past watching the boys and girls, and men and women, as they enjoy their automobile rides during this sultry August weather. It is true they raise a dust more or less; but, oh dear me! what is a little dust, or a good lot of it, compared to seeing the farmer's money go for booze instead of for an automobile? Some one may suggest that the automobile costs more than the booze; but I am not so sure of that. When you come to count up the widespread losses

as the effects of the booze, such as poor-houses, lunatic-asylums, crippled babies, etc., the cost of the automobile is *nowhere*. Just see the figures that are being paraded just now in regard to the cost of intoxicants thruout the land.

Just a word more about the dust. During the springtime we had the road sprinkled in front of our bungalow; but something happened to the waterworks, and Mrs. Root put in a plea for an *oiled road*. One trouble with sprinkling is that, during the hot rainless season, the water lasts only a few hours; but the oiled road we have now is a "thing of beauty and a joy"—until it needs another coat of oil; and the outlook now is that the oil is going to be cheaper than the water sprinkling in the end. I thank God for the good time in sight when all mankind will have water to drink instead of booze. I thank him, too, for the oil to oil our roads, and the gasoline to take the place of booze to run our automobiles, not forgetting the beautiful and glorious means of transportation we now enjoy, without overtaking the tired horses when the weather is too hot and sultry for anything but an automobile.

BOOZE, AND ITS EFFECTS ON WOUNDED SOLDIERS.

We clip the following from a sheet dated Aug. 7, put out by the Methodist Board of Temperance:

The *Vindicator* publishes a statement by the greatest woman lawyer of France, Madam Maria Verone. In her address she declared that France had been robbed of the lives of vast numbers of its soldiers by drink. She declared it to be the invariable experience of physicians that wounds which scarcely affected normally healthy men were deadly in the case of drinkers. In conclusion she said:

"We will no longer tolerate from our parliamentarians the want of courage and initiative they have always hitherto shown in handling this drink problem. Bereaved mothers and widows from behind their mourning-veils cry to you to prohibit alcohol as a beverage. If you don't yield to them, they will turn you out at the next election."

Good for the women of France! May God grant that *they*, like the good women of the United States, may soon dictate what sort of men shall fill important offices for the nation.

In line with the above is the following from the pen of Wm. Jennings Bryan:

THE MOTHER ARGUMENT.

The strongest argument in favor of woman suffrage is the mother argument. I love my children—as much, I think, as a father can; but I am not in the same class with my wife. I do not put any father in the same class with the mother in love for the child. If you would know why the mother's love for a child is the sweetest, tenderest, most lasting thing in the world, you will find the explanation in the Bible: "Where your treasures are, there will your heart be also." The child is the treasure of

the mother; she invests her life in her child. When the mother of the Gracchi was asked: "Where are your jewels?" she pointed to her sons. The mother's life trembles in the balance at the child's birth, and for years it is the object of her constant care. She expends upon it her nervous force and energy; she endows it with the wealth of her love. She dreams of what it is to do and be—and, oh, if a mother's dreams only came true, what a different world this world would be! The most pathetic struggle that this earth knows is not the struggle between armed men upon the battlefield; it is the struggle of a mother to save her child when wicked men set traps for it and lay snares for it. And as long as the ballot is given to those who conspire to rob the home of a child it is not fair—no one can believe it fair—to tie a mother's hands while she is trying to protect her home and save her child. If there is such a thing as justice, surely a mother has a just claim to a voice in shaping the environment that may determine whether her child will realize her hopes or bring her gray hairs in sorrow to the grave. Because God has planted in every human heart a sense of justice, and because the mother argument makes an irresistible appeal to this universal sense, it will finally batter down all opposition and open woman's pathway to the polls.

"GOD'S KINGDOM COMING."

We take pleasure in clipping the following from the *Union Signal*. I do not mean that I take pleasure in seeing anybody fail in business; but I take pleasure in the above because I am sure that the liquor people will be *better* and *happier* in turning their attention to some other source of livelihood.

SALOONS FOR SALE IN PHILADELPHIA.

The Philadelphia correspondent of *Bonfort's Wine and Spirit Circular* admits that "very little new business is being done or looked for" in his city, but ascribes the dullness to the hot season, etc. However, the real-estate men who handle saloon properties say they have been loaded down with commissions to sell during the last few months. The *North American* states that two hundred and forty saloonkeepers of the city are ready to "quit business before the tidal temperance wave which is sweeping the country puts them out," and that more than a thousand places thruout the state are likewise on the ragged edge, seeking a purchaser who is willing to risk his money on the chance that the whisky trust and the brewers may save the day for them.

IN KANSAS 32 COUNTIES HAVE ABANDONED THEIR PUBLIC POOR-FARM.

We clip the following from the *Christian Herald* in regard to Kansas:

Forty counties in the state did not send a single prisoner to the state penitentiary last year. In one county, the jail, which had been empty for two years, is now used as a corn-crib. Poverty and illiteracy are disappearing. Thirty-two counties have abandoned their public poor-farms, and in the whole state less than nine hundred paupers are being cared for in county institutions. The bigger part of the criminal cases tried in the state courts is due to the influx of liquor from other states, and in most cases the culprits are not Kansas citizens.

Kansas wants the whole Union to know the truth about these things. It has chosen a decent road for its people to travel, and it intends to go right along on this new and clean highway. Governor Capper's address in pamphlet form should be circulated and read wherever there is a liquor question. It is one

of the most convincing temperance arguments we have ever seen.

It seems that Gov. Capper does not propose to let the liquor people go unanswered in their desperate efforts to find some fault with Kansas.

A DRUNKEN CHAUFFEUR, AND HOW IT WORKS.

We clip the following from the *Kansas City Star*:

WHEN WHISKY SITS AT THE WHEEL.

The three young men who rode in the death-car Saturday night that ran into the crowd of young people at Fifteenth and Troost have been captured.

But the real *driver* of the car is still at liberty.

It was whisky that sat at the wheel and committed the murder. It was whisky that sent the car on its mad way after two of the young folks had been killed and others injured.

Whisky still is free and unrestrained. It was out bright and early this morning looking for other young men to act as its agents and ride with it on another death mission.

My impression is that not a few of the accidents from automobiles every day are caused by a drunken or drinking chauffeur. Right near our own town of Medina two automobiles ran into each other "head on" at a good speed. We were told the injuries were so great that there was but little hope of saving the life of at least one of the parties; but we do not know how it came out. I have since been informed that the parties in one of the automobiles, if not in both, stopped at a "roadhouse" saloon, just before the accident, and that the whole trouble was due to drink; but, as often happens, the friends or relatives of the injured parties took pains to have the *real* cause kept out of the papers.

"A STANDING ARMY(?) MADE UP OF INDIVIDUALS SUFFERING FROM PARALYSIS."

Dr. R. H. Bishop, Commissioner of Health for the city of Cleveland, in an article in regard to pneumonia, in the *Plain Dealer*, writes as follows:

Alcohol is another important predisposing cause of pneumonia. It is the sum total of effect of alcohol on all the cells of the body that gives one the feeling produced by alcohol.

The cells, which represent the standing army of the body, are more or less paralyzed. Their efficiency is partially destroyed and the condition is similar to what would occur if the standing army of the nation were made up entirely of individuals suffering from paralysis.

Is this overstated or overdrawn? The above reminds me of the time when Mrs. Root was near death from this same pneumonia. The doctor and nurses declared she would have to have brandy to "pull her thru." But she refused to take it, and I backed her up, and she is alive and well today. Who can say she would have been alive and well if she had followed the doctor's orders?

YOUR LAST CHANCE

to get Queens of H. G. Quirin for this season, as it now is time to unite for winter, so hurry in your orders.

For prices see previous issue of Gleanings.

Honey for sale now in any quantity.

H. G. Quirin-the-Queen-breeder, Bellevue, Ohio

\$3.00 CARNIOLAN QUEENS for \$1.00 EACH

To reduce our stock quickly we offer fine "Select Tested" queens raised this season, worth \$3.00 each, for \$1.00 each. Only about 100 of these choice queens for sale.

Now is your chance to get a fine breeder very cheap. Safe arrival guaranteed. Untested queens all sold for this season.

F. A. LOCKHART & COMPANY,

LAKE GEORGE, NEW YORK

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free
Queen-breeder

J. P. MOORE,
Route 1, MORGAN, KY.

Please Notice Change of Prices of Leininger's Strain of Italians

We will sell untested Italian queens at 75 cts. each; six, \$4.50; tested, one year old, at 80 cts. each; six, \$4.80; tested, young, \$1.25; six, \$6.50. Breeders, \$10 each. We guarantee that all queens will reach you in good condition, to be purely mated, and give satisfaction.

Fred S. Leininger & Son . . Delphos, Ohio

Three-band ITALIAN QUEENS

bred from imported mothers, the best in the world; good honey-gatherers and very gentle. One for 50 cts., \$6.00 per dozen. Pure mating, safe delivery, and perfect satisfaction guaranteed. **L. L. FOREHAND, FORT DEPOSIT, ALA.**



Queens--Queens--Queens.

tested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS

We are breeding from the best three-band Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each.

We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

FORT DEPOSIT, ALABAMA



WARDELL'S ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested . . . September and October, \$1.00
Select Untested . . . " " " 1.25

Tested . . . September and October, \$2.00
Select Tested . . . " " " 3.00

Our supply of untested and select untested is likely to be small after October.

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

A No. 1 clover in 120-lb. cases at 8 cts. Sample 10 cts. H. C. LEE, Brooksville, Ky.

FOR SALE.—White-clover honey, both comb and extracted. W. M. PEACOCK, Mapleton, Ia.

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

In new 60-lb. cans, clover honey, 8 cts.; buckwheat, 7. G. H. ADAMS, box 184, Schenectady, N. Y.

A1 clover—amber-blend honey in new 60-lb. cans, at 8 cts. VAN WYNGARDEN BROS., Hebron, Ind.

FOR SALE.—Fine extracted buckwheat honey, \$8 per case of 118 lbs. net. LEROY LLOYD, Caywood, N. Y.

Buckwheat honey, comb and extracted; also clover extracted, 60-lb. cans. E. L. LANE, Trumansburg, N. Y.

FOR SALE.—White-clover extracted honey in 60-lb. cans, two cans to a case. ARTHUR NORBERG, Spring Valley, Ill.

Well-ripened clover and buckwheat honey in new 60-lb. cans—two cans to the case. B. B. COGGSHALL, Groton, N. Y.

Light-amber extracted honey, 60-lb. cans, at 6 cts. per lb., f. o. b. cars. Sample, 10 cts. C. R. ALLEN, Vicksburg, Miss.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7½ cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at 8½ cts. per lb. Also fancy and No. 1 clover comb honey, 4¼ x 1½ sections. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Fancy white-clover honey; extracted, 8 cts. by the case of 120 lbs. Also same in 2-lb. friction-top cans, 24 cans to the case, 10 cts. f. o. b. Falmouth, Ky. VIRGIL WEAVER.

FOR SALE.—Extra quality white-clover honey, 8½ cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone \$1.00. EARL KULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW Co., Clarion, Mich.

No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case; extracted in 60-lb. cans; clover, 9 cts.; amber, 8 cts. Amber in pails, 6 ten-pound or 12 five-pound to case at \$6.00 per case. H. G. QUINN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—5000 lbs. fancy extracted white-clover honey; also a quantity of extracted heartsease and Spanish-needle blend, put up in barrels of about 550 lbs. net, and new 60-lb. cans. Honey is thoroughly ripened, and there is none better on the market. Prices reasonable. Sample, 10 cts.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

HONEY AND WAX WANTED

WANTED.—Fancy clover honey in 4 x 5 sections. L. E. FRENIER Co., Rutland, Vt.

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW Co., Clarion, Mich.

WANTED.—Extracted honey in any lots. Send sample. THE HONEY KING, Mahanomen, Minn.—54982

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

Beeswax bought and sold. STROHMMEYER & ARPE Co., 139 Franklin St., New York.

WANTED.—Comb honey. What have you to offer? R. V. STROUT, 325 11th St., S. W., Washington, D. C.

WANTED.—Comb honey, fancy and No. 1 white clover; also buckwheat comb; glassed sections preferred. HOFFMAN & HAUCK, Richmond Hill, N. Y.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares. SUPERIOR HONEY Co., Ogden, Utah.

FOR SALE

White-blooming sweet clover, only 9 cts. per lb. GEORGE M. CALLEN, Selma, Ala.

Get our new Rubber Stamp and Label Catalog. ACME PRINTING Co., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL Co., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Ten Woodman double-wall hives, with deep cover, chaff-tray, no frames, 10-frame size; hive has been used four seasons; one coat of paint will make them as good as new. Will sell the ten for \$8.00. EARL L. BAKER, Star City, Mich.

FOR SALE.—500 Page Kenkle comb-honey supers, 4¼x4¼x1, ¾, nailed and painted with holders, springs, and separators, used 3 seasons, in perfect condition, at 35c each; lots of 100 at 30 cts. B. F. SMITH, JR., Fromberg, Mont.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

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PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

POULTRY

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry, for pleasure or profit; four months for 10 cents. POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

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REAL ESTATE

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 R'y Exchange, Chicago.

THE SOUTH FOR FARM PROFITS. Why not look for a farm home in the South? Farm lands, for time and money invested, pay larger profits than elsewhere. Two to four crops a year, good yields; best prices for products. Good locations in healthiest, most pleasant districts, \$15 an acre up. Write for our literature and the special information you wish. M. V. RICHARDS, Ind. and Agr. Comm'r, Room 27, Southern Railway, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

WANTED.—Back numbers of GLEANINGS. We will give two months' credit on subscription for each number of GLEANINGS sent us (in good condition) of dates of March 1, July 1, and August 1, 1916, up to a total of 25 of each number. Here is a chance to get six months' subscription at little cost. Send them along. THE A. I. ROOT COMPANY, Medina, O.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

FOR SALE.—Italian hybrids at 20 cts. each.
C. G. FENN, Washington, Ct.

Italian queen-bees, \$1.00 each; tested, \$1.50.
J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—Italian queens; untested, 50 cts. each.
E. A. SIMMONS, Greenville, Ala.

Fine three-banded Italian queens. Circular and price list free.
J. L. LEATH, Corinth, Miss.

All or part of 800 to 1400 colonies of bees for sale. Ask for terms. W. P. COLLINS, Boulder, Col.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00.

EDITH M. PHELPS, Binghamton, N. Y., East End.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

CLOSING-OUT PRICE.—Some fine young golden queens that produce golden bees. Good honey-gatherers, tested, 75 cts.; 3, \$2.00; untested, 50 cts.; 3, \$1.25. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

Southwest Virginia five-banded Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.
HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.
M. BATES, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Willianstown, Ky.

HOLLOPETER'S honey-gathering strain of Italians are now at their best. This strain has a record of 100 lbs. more honey per colony than the average colony. Safe arrival by return mail. Untested queens, each, 75 cts.; 10 for \$6.00, 20 for \$10.00. Tested queen, each, \$1.00. 1 lb. bees with queen, \$2.00. We are booking orders now for spring delivery.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens, add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N.J.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long-lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

One hundred colonies of the yellow strain Italian that are free from disease and heavy in stores on Hoffman frames in ten-frame hives that are in good condition. Price is \$200 for the lot. Also twenty new hives painted and ready for use with wired Hoffman frames; are the regular Dovetailed hives that were never in use, at \$2.00 each, or bees and hives for \$235. Must be sold by Oct. 15.

W. S. WILLIAMS, Julian, Pa.

FOR SALE.—65 colonies Italian bees, \$4.00 per colony; 10 colonies hybrids, \$3.50 per colony. All from J. P. Moore's strain. All in 8-frame hive bodies in winter-cases, standard full-depth self-spacing Hoffman frames, 8 to each hive. All combs straight; colonies strong and healthy with stores for winter. Would bunch the lot for \$3.25 per colony. A few untested Italian queens, 60 cts. each.

WILMER CLARKE, Earlville, Madison Co., N. Y.

Convention Notice

MICHIGAN BEEKEEPERS EAT THANKSGIVING DINNER IN LANSING.

On November 30, December 1 and 2, Michigan beekeepers will gather at Lansing for the fifty-first meeting of the State Association. The opening day coming on Thanksgiving will enable beemen to renew acquaintance one with the other over the festive board, and will be an auspicious day on which to unite and discuss the summer's work, and to make plans for a more successful season in 1917. The holiday will also enable beekeepers to bring their wives along, so that we expect this meeting to be largely a family affair. Many ladies have already intimated that they would be present to help swell the attendance and enjoy a good time.

We are preparing an interesting and profitable program, which will be published in the November issue, and we can assure all those planning to attend that we are going to have the best meeting that the Michigan Beekeepers' Association has ever had.

There are many beekeepers who do not yet fully realize the value of these conventions. A beekeepers' convention is an investment for the beekeeper, and it remains with him to secure as many shares as possible, because every share should, and in many cases does, return a fine profit the next season.

Many of our most successful beekeepers will be in attendance—beemen who count their crops in tons rather than in pounds; and a few minutes' conversation with these men will be worth all the expense and trouble of coming to the meeting. If you are looking forward to making beekeeping a profitable part of your work in the future, by all means take in these meetings in Lansing.

We do not want the beekeepers to forget the exhibit side of the convention. We shall have plenty of room to display honey and other exhibits; and as we are planning to give diplomas and medals to be won outright, besides the challenge medals, we are expecting a nice showing of honey that will add to the general interest of the convention.

We hope to include other features which will tend to enliven the proceedings; and with the banquet which Messrs. Root and Hunt are providing all beekeepers present, we should easily have a convention that will rank among the largest and most enjoyable ever staged by a state association. We will do our part, and hope and expect you to join with us in making this coming meeting a hummer, and eat your Thanksgiving dinner in Lansing.

East Lansing. F. ERIC MILLEN, Sec.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

☐ **THE DEVELOPMENT OF THE APPLE FROM THE FLOWER.** By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.

☐ **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.

☐ **CATALOG OF BEEKEEPERS' SUPPLIES.** Our new complete catalog, mailed free to any address on request.

☐ **THE BEEKEEPER AND FRUIT-GROWER.** Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.

☐ **SPRING MANAGEMENT OF BEES.** The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.

☐ **THE USE OF HONEY IN COOKING.** Just the thing for the up-to-date housewife. Price 10 cents.

☐ **BEES AND POULTRY,** how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.

☐ **HOW TO KEEP BEES.** A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.

☐ **THE A B C OF BEE CULTURE.** A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.

☐ **WINTERING BEES.** A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.

☐ **THE BUCKEYE HIVE,** or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.

☐ **SWEET CLOVER,** the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.

☐ **ADVANCED BEE CULTURE.** A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$..... to cover the cost.

Name

Street Address or R. F. D.

Town

State

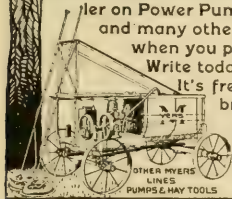
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OR DISINFECTING
To the man experienc-
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Fall Spraying means

healthy trees that will require but little more care the following spring. Fall is the season to successfully fight scale and similar tree diseases by spraying, and you want the best equipment obtainable for this work. MYERS will fill the bill, and whether your orchards are extensive or include but a few trees there is a MYERS OUT-FIT that will just fit your needs. Myers Spray Pumps are also adapted for painting, disinfecting and similar work.

The Myers Line includes Bucket, Barrel and Power Pumps and Complete Outfits with such improvements as our patented easy operating Cog Gear Head on Hand Pumps and Automatic Pressure Controller on Power Pumps—You get these and many other exclusive features when you purchase a MYERS.

Write today for large Catalog—It's free and a postal will bring it to your door.



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The Eyes, Ears, and Mouth are Near Together

To see birds, hear their
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are a happy trio.

There is a new and enlarged
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Send twenty-five cents for a four-
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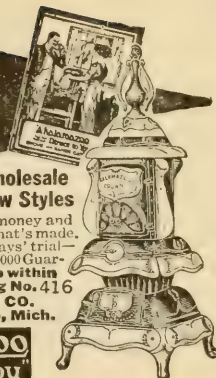
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MAIL postal today—save money and
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A Kalamazoo
Trade Mark
Registered **Direct to You**



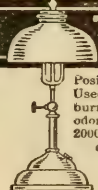
HONEY-JARS

No. 25 one-pound screw-cap, \$4.75 a gross. Discount on quan-
tity. Light honey, clover flavor, two 60-lb. cans, 9 cts.
per lb. Sage honey, 9½ cts. Catalog of apianian
supplies and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

Whys and Wherefores of Fall Spraying

is the title of a little booklet, giving seven
reasons, official and non-official, why it is the
best time to spray. This booklet will be sent
out by the B. G. Pratt Co., 50 Church St.,
New York, manufacturers of the well-known
"SCALECIDE" at a very early date. If you
are not on their mailing list, send them a
postal today giving the number of your trees
and your dealer's name and you will re-
ceive a copy free. Address Dept. 6.



The 'BEST' LIGHT

Positively the cheapest and strongest light on earth.
Used in every country on the globe. Makes and
burns its own gas. Casts no shadows. Clear and
odorless. Absolutely safe. Over 200 styles 100 to
2000 Candle Power Fully Guaranteed Write for
catalog. AGENTS WANTED EVERYWHERE
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

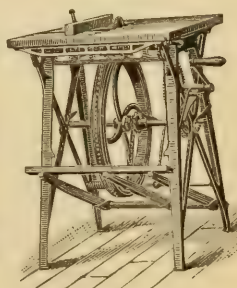
BARNES' Hand and Foot Power Machinery

This cut represents our com-
bined circular saw, which is
made for beekeepers' use in
the construction of their
hives, sections, etc.

Machines on Trial

Send for illustrated catalog
and prices. Address

W. F. & JOHN BARNES CO.
545 Ruby St.
ROCKFORD, ILLINOIS



TRADE NOTES

SECOND HAND 60 LB. CANS.

Our supply of second-hand cans at New York has been disposed of; but we still have a good supply both at Medina and Philadelphia of choice cans suitable for use again in shipping honey. These we are selling at \$4.00 for 10 cases; \$8.50 for 25 cases; \$30.00 for 100 cases.

CHIPPED TUMBLERS CHEAP.

We again have a supply of two or three hundred cases of 2 dozen each of tin-top tumblers holding $6\frac{1}{2}$ oz. of honey, or $\frac{1}{4}$ lb. of jelly. They have the edges slightly chipped so they cannot be sealed airtight for shipping, but will serve as a cheap container for some uses. We offer them, while they last, at \$2.00 for ten cases of 2 dozen each, including the tin tops.

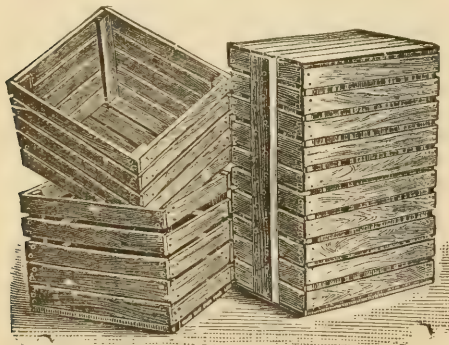
MASON FRUIT-JARS.

We have a surplus stock of choice Atlas Mason fruit-jars which we offer, to reduce stock, at the following prices which are good only while this stock lasts, and for shipment from Medina, Ohio, only. Pint Mason jars, 45 cts. per doz.; \$5.25 per gross. Quart Mason jars, 48 cts. per doz.; \$5.50 per gross. Two-quart Mason jars, 75c per doz.; \$8.50 per gross.

These are packed in paper cartons of one dozen each. Pint size would stand reshipping short distances filled with honey, altho we would not recommend it.

BUSHEL BOXES.

We have on hand, ready for immediate shipment, a good stock of these boxes, packed as shown in cut. They are made with oak corner posts and bottom end slats to receive the nails, the remainder of the box being basswood. They are very convenient, and popular for handling potatoes, apples, onions, and other farm crops. They hold a heaped bushel level full, so they can be stacked any height desired. To reduce stock we offer them for a short time at the following special prices:



All-slatted bushel boxes, per crate of 14, \$2.25.
Slatted bushel boxes, per crate of 12, \$2.10.
Galvanized bound boxes, per crate of 12, \$2.75.

In lots of 10 crates or more, 5 per cent discount.
The all-slatted is the cheapest, and the most popular style. Two are nailed in each package, and sufficient nails are included for the remainder.

FURTHER CHANGES IN PRICE.

Advancing costs have made necessary some further changes in price of several articles listed in our catalog.

Enamel cloth is raised 5 cts. per yard to 35 cts. or \$5.60 per piece.

Metal frame-spaces are raised 5 cts. per 100 to 40 cts. or \$3.50 per 1000.

Tin rabbits are raised 5 cts. per 100 to \$1.25; also T tins the same.

Glass for shipping-cases is advanced to \$2.00 per 100 for 2 x 16, or \$3.60 per box of 220 pieces.

Novice honey-knives are advanced 10 cts. each to 90 cts.

Section boxes in quantities above 1000 are marked up 15 cents per 1000, no change being made in the small-quantity rate except that B grade plain are advanced to a difference of 50 cts. below A grade instead of 75 cts., the rate in effect the past year.

REVISED PRICES ON COMB FOUNDATION.

Because the cost of paper has more than doubled, and labor has advanced, we have found it necessary to revise prices on comb foundation and rates for working wax into foundation. The new scale of prices on foundation packed in assorted paper boxes of 1 to 5 lbs. is 2 cts. per pound higher than those which have been in effect the past year, and, effective Oct. 1, are as follows:

	Price per pound in lots of			
	1 lb.	5 lb.	10 lb.	25 lb. 50 lb.
Medium brood	.62	.60	.58	.56 .55
Light brood	.64	.62	.60	.58 .57
Thin super	.70	.67	.65	.63 .62
Extra thin super . . .	.75	.70	.68	.66 .65

Packed in 25-lb. wood boxes, 1 ct. per lb. less.

Packed in all 5-lb. paper boxes, $\frac{1}{2}$ ct. per lb. less.

Packed all in 2-lb. paper boxes, 1 ct. per lb. more.

Packed all in 1-lb. paper boxes, 2 cts. per lb. more.

Wholesale and jobbing prices are marked up on the same basis.

Rates for making wax into foundation are advanced 2 cts. per lb. in 25 and 50 pound lots, and 1 ct. in larger lots, with a like advance for paper packing.

THE A. I. ROOT CO., Medina, O.

Special Notices by A. I. Root

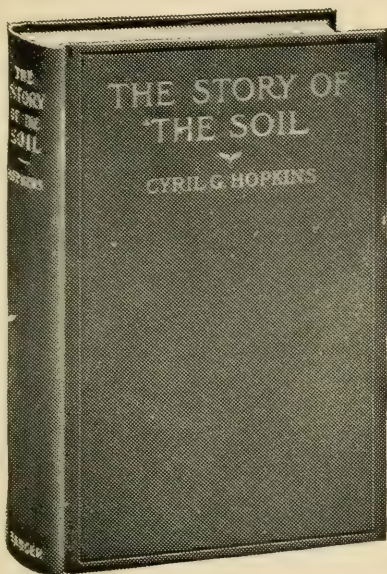
THE LADY EGLANTINE CHICKENS.

On page 879 of our last issue I told you of a pullet that laid her first egg when 4 months and 8 days old, and that she was at that date laying an egg every day. I am glad to tell you she has continued to lay an egg every day up till today, Sept. 26—that is, so far as I can tell without trapnesting. As her comb is so different from any of the others I almost invariably find her on the nest some time in the forenoon. Furthermore, I put her in a cage and took her over to our county fair where she stayed two days and laid an egg each day on the fair-ground, and one the day after she got home. (About a week ago a sitting hen came off with eight chicks from the little pullet's eggs; and they are as lively as crickets at this date.) Not only has this one pullet shown herself to be such a persistent layer at so early an age, but we are getting five or six little eggs (they are steadily getting bigger) from the seven pullets every day; and yesterday we got six. All of them laid an egg but one. Now, already we are having applications for eggs; but, bless your heart, my good friends, it would not do for the writer of the Home papers to go to selling eggs unless he sells them to the grocer at grocery prices. If you want some of the Lady Egline stock write to the Lady Egline Farms, Greensboro, Md. The little book they send out will be valuable, even if you do not make a purchase.

"CONVERSATIONS WITH CHRIST," ETC.

The little tract containing the title above, given on page 747, Aug. 15, can be had free of charge by addressing L. B. Worcester, Tabor, Iowa. In ordering you had better send a stamp or stamps to pay postage.

The Hephzibah Faith Missionary Association, Tabor, Iowa, also publishes a beautiful little Christian and temperance paper twice a month, called *Good Tidings*, at only 50 cents a year, now in its sixteenth year; also a very pretty and wholesome weekly for young people, entitled *John Three Sixteen*, at only 30 cents a year. Both periodicals are specially designed for mission Sunday-schools, and large numbers are used by Christian workers for free distribution at railroad stations, jails, etc. Samples free. Address Faith Missionary Association, Tabor, Iowa.



A Wonderful Book

This is the judgment of
every thinking man
who has read

“The Story of
the Soil” By Prof.
Cyril G. Hopkins

It covers the whole field of life on the
farm, soil fertility, and perma-
nent agriculture.

What They Say About It

“Holds the intense interest of the reader.”
—Ohio Farmer.

“The farmers owe Mr. Hopkins a debt of gratitude.”
—Chicago Tribune.

“Worth millions to the farmers of America.”
—Prairie Farmer.

“Ought to be in the hands of every farmer in the world.”
—Farmer and Breeder.

“I enjoyed every word of it. A fascinating novel about the soil.”
—Editor American Agriculturist.

“A wealth of information.”
—Editor Wallace’s Farmer.

“The book is destined to do more good and stir more thought among the farmers of this country than any other publication that has yet appeared.”
—Ex-Gov. W. D. Hoard.

Don’t Wait Till They are Gone

This book formerly sold for \$1.62 in cloth binding. A few days ago we secured from the publishers the entire remaining stock of this great book in paper binding and can offer it with “Gleanings in Bee Culture” for one year at \$1.15. When this consignment of these books is exhausted we shall be unable to furnish more.

DON’T WAIT. Get in your order today.

Gleanings in Bee Culture, Medina, Ohio

Southern Headquarters for 3-band Italian Queens

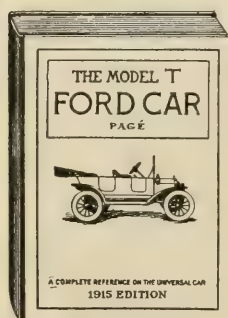


Photo of part of Achord's queen-yard, taken April 15, 1916, showing where neither labor nor money is spared to produce the very best queens that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good, as hundreds of our old customers testify to same.

June and July		August and later	
Select Tested Queens...	1 for \$1.75; 12 for \$19.25	1 for \$1.65; 12 for \$18.00	
Tested Queens.....	1 for \$1.05; 12 for \$12.00	1 for \$1.00; 12 for \$10.75	
Untested Queens.....	1 for 60 cts.; 12 for \$ 7.00	1 for 55 cts.; 12 for \$ 6.00	

Very best queens for breeding, \$3.00. 1 lb. bees in package, \$1.25; 2 lbs. in package, \$2.00.
Add price of queen. If any of our untested queens should prove to be misnamed we are willing to replace them free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival on all I send out.

W. D. ACHORD, FITZPATRICK, ALABAMA.



Before Winter Sets in

And while winter shuts us in is a good time to learn all about that Ford car--especially do you want to know how to put it away in good shape for the winter months and overhaul it.

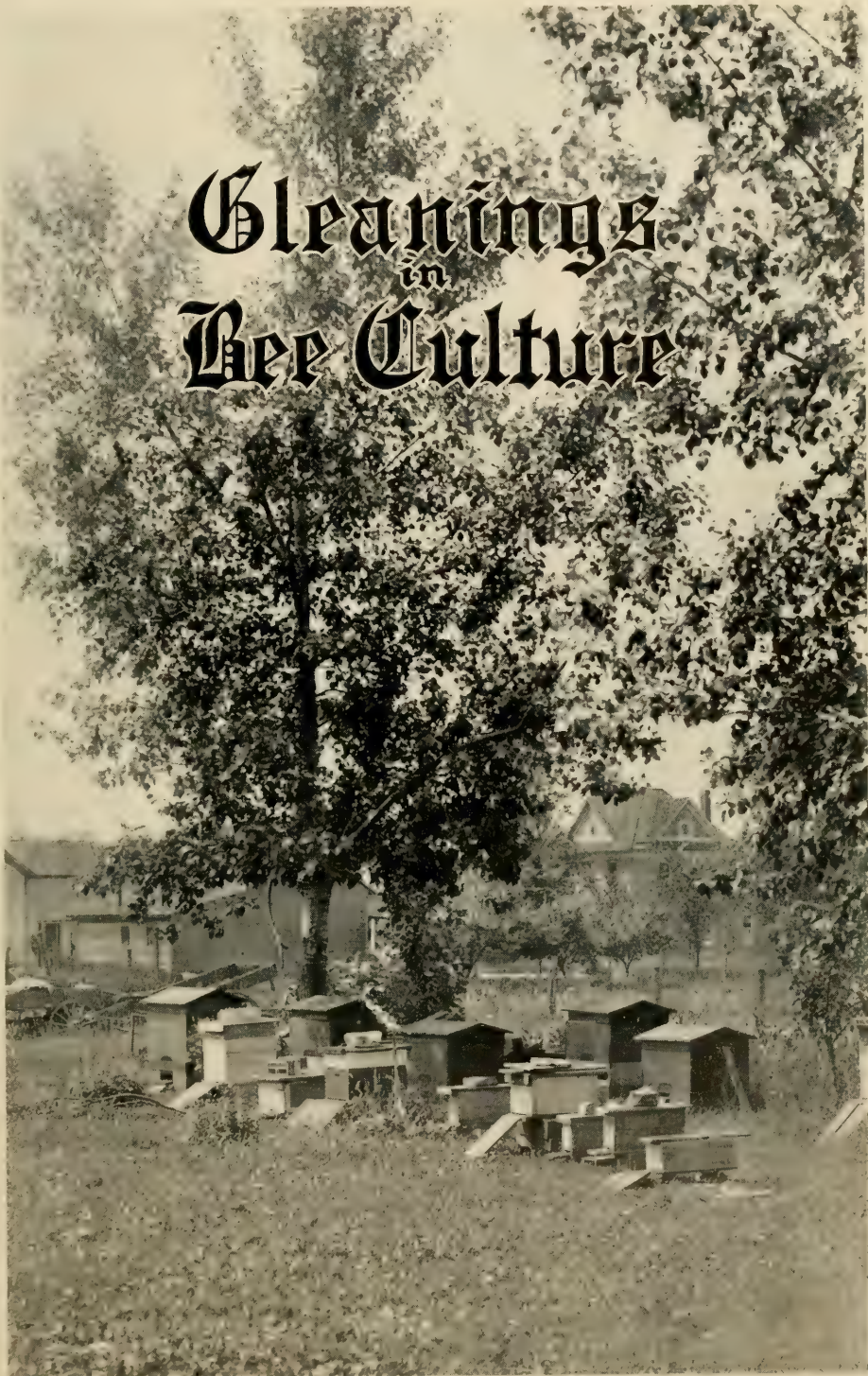
"The Model T Ford Car"

Tells you all about it. Written especially for Ford drivers and owners by that recognized authority on gasoline power, Victor W. Page, and written so that any man or woman can understand it. More than 100 illustrations, 300 pages, handsomely printed and bound. Worth many times its cost to any Ford owner. Price \$1.00 postpaid, or

Gleanings, one year, and
Model T Ford Car . . . \$1.50

Gleanings in Bee Culture . . . Medina, Ohio

Gleanings in Bee Culture



Vol. XLIV

October 15, 1916

No. 20

Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 2 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 19 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate
- 13 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-pound cases, at \$4.00 per crate.

All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

There are also for the same size section, packed 10 in a crate:

- 10 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
- 3 crates of 10 each, 6¼-inch, 2-row, at 85 cts. per crate.
- 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

For the 4¼x1½ beeway section we have:

- 4 crates of 50 each, 15¼-inch, 2-row, for 15 sections, at \$4.50 per crate.
- 6 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.
- 10 crates of 50 each, 11¾-inch, 2-row, for 12 sections, at \$4.00 per crate.

- 6 crates of 10 each, 12-lb. safety cases with cartons at \$1.20 per crate.

- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

For 24 sections, 4¼x1½ plain:

- 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
- 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

For 12 sections 4x5x1¾:

- 15 crates of 50 each 3-row cases, at \$4.00 per crate.

ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼x1¾ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3¾x5x1½-inch sections at \$4.00 per crate.

At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼x1¾ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼x1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3¾x5x1½ sections at 85 cts. per crate.
- 1 crate, 10 each, 12-lb. cases for 4x5x1¾ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4x5x1¾ sections, including safety cartons \$1.20 per crate.

At New York Branch.

- 20 cases, 12-lb., 3-row, sliding covers, 4 x 5 x 1¾.
- 85 cases, 9½-inch, 2-row, sliding covers, 4¼ x ½.
- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼x1¾ sections at \$4.00 per crate.

At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼x1¾ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼x1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼x1¾ sections at \$4.50 per crate.
- 7 crates, 50 each, 12-lb. cases for 3¾x5x1½ sections, at \$1.00 per crate.
- 2 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

At Philadelphia Branch.

- 9 cases of 1 dozen each, 1-pt. Premium jars, 50 cts. per case; \$4.00 for the lot.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each ½-lb. square jars with cork, at 90 cts. per case.

At Washington, D. C.

- 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
- 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
- 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.

These are fine for exhibition purposes.

- 4 dozen ½-lb. Hersher jars with nickel tops at 50 cts. a dozen.
- 11 doz. 1-lb. square Hersher jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1....holding	24 sections, $4\frac{1}{4} \times 1\frac{1}{8}$, showing	4.....10, \$2.00; 100, \$18.00
No. 3....holding	12 sections, $4\frac{1}{4} \times 1\frac{1}{8}$, showing	3.....10, \$2.00; 100, \$18.00
No. 1 $\frac{1}{2}$ holding	24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing	4.....10, \$1.90; 100, \$17.00
No. 6....holding	24 sections, $3\frac{3}{8} \times 5 \times 1\frac{1}{2}$, showing	4.....10, \$1.80; 100, \$16.00
No. 8....holding	24 sections, $4 \times 5 \times 1\frac{1}{8}$, showing	4.....10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

		with 3-inch glass	with 2-inch glass
No. 11....Same as No. 1....	Nailed, 35c; in flat,	1, 25c; 10, \$2.30; 100, \$21.00....	100, \$20.00
No. 13....Same as No. 3....	Nailed, 22c; in flat,	1, 15c; 10, \$1.40; 100, \$12.50....	100, \$12.00
No. 11 $\frac{1}{2}$ Same as No. 1 $\frac{1}{2}$	Nailed, 35c; in flat,	1, 25c; 10, \$2.20; 100, \$20.00....	100, \$19.00
No. 16....Same as No. 6....	Nailed, 30c; in flat,	1, 22c; 10, \$2.10; 100, \$19.00....	
No. 18....Same as No. 8....	Nailed, 30c; in flat,	1, 22c; 10, \$2.10; 100, \$19.00....	

Red Catalog, postpaid.

Dealers Everywhere.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross, also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L. A.," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

MATANZAS.—We are now paying for light-amber honey from 46 to 47 cts. a gallon.
Matanzas, Cuba, Oct. 7. ADOLFO MARZOL.

DETROIT.—Very little demand at present. We quote extra fancy comb at 15; fancy, 14; extracted, white, 9; amber, 8.
Detroit, Oct. 10. F. P. REYNOLDS & Co.

PITTSBURG.—Demand is opening up fairly well. We look for good business from now on. We quote fancy comb honey, per case, \$4.80; No. 1 or choice, \$4.00.
Pittsburg, Oct. 10. W. E. OSBORN CO.

CLEVELAND.—Both supply and demand for honey continue extremely light, but we look for a much better demand as soon as local fall fruits are out of market. We quote new comb honey, fancy, per case, \$3.75 to \$4.00.
Cleveland, Oct. 3. C. CHANDLER'S SONS.

BUFFALO.—Receipts are light; no surplus stock in our market; demand also light; quality of honey arriving is very fine—the best we have had in several years, grading mostly No. 1 white and fancy white. No dark honey is arriving; honey in our markets is sold by net weight only. We quote comb honey, extra fancy, per lb., 16; fancy, 15 to 15½; No. 1, 14 to 14½; No. 2, 13 to 13½. Clean average yellow beeswax brings 32 to 33.
Buffalo, Sept. 30. GLEASON & LANSING.

PHILADELPHIA.—We have about cleaned up our holdings of last season's honey, and are now in good shape for new stock. The outlook seems favorable for the sale of fine comb honey at fair prices. We quote below the outlook at present in our market. Extra fancy comb honey, per pound, 15 to 16; fancy, 14 to 15; No. 1, 12 to 13; No. 2, 9 to 10. White extracted honey in cans brings 8 to 8½; light amber, in cans, 6 to 6½; amber, in cans, 5½ to 6. Clean average yellow beeswax brings 28 to 30 cts.
Philadelphia, Oct. 10. CHARLES MUNDER.

CINCINNATI.—The demand for honey is good, especially for extracted honey. We are selling white-clover extracted honey from 7½ to 10 in 60-lb. cans; amber extracted honey from 5½ to 8, according to quantity and quality. The demand for comb honey is showing life, altho the big buyers are leary lest the western men "bust the market to smithereens." We are selling comb honey from \$3.40 to \$3.75 a case, and now have calls for No. 2 and No. 3 grades, but have none in stock. For choice bright yellow beeswax we are paying 28 cts. delivered here.
Cincinnati, Oct. 11. THE FRED W. MUTH CO.

NEW YORK.—Honey is beginning to arrive in good-sized shipments now, both comb and extracted. As to comb honey, there is a fair demand, especially for No. 1 and fancy white, which are selling around 14 to 15; lower grades at 12 to 13; mixed and dark, 10 to 11. Extracted is arriving freely, and white clover is selling around 7½; amber, 6½ to 7; buckwheat, 6½. Shipments from the South are not very large at this time, but large shipments are arriving from the West Indies, and will increase next month, when the new crop is ready for market. These goods are selling around 60 to 65 cts. per gallon, according to quality.
New York, Oct. 9. HILDRETH & SEGELKEN.

KANSAS CITY.—The demand for comb honey is light on account of a big local crop. Car of Colorado here this week; jobbing, around \$2.90 to \$3.00. Demand for extracted is light; supplies not very heavy. Fancy and No. 1 comb brings \$3.00; D in No. 2, \$2.75; extracted, white, 8½; light amber, cans, 8; amber, 6 to 7. Clean average yellow beeswax brings 25.
C. C. CLEMONS PRODUCE CO.
Kansas City, Oct. 6.

CHICAGO.—The supply is abundant and is, as usual, in excess of demand during this month. Sales are fair, but large; supply keeps down price. We quote extra fancy comb honey, per case, 15 to 16; fancy, 15; No. 1, 14; No. 2, 12 to 13. White extracted honey brings 7 to 8; light amber, in cans, 6 to 7; amber, 6. Clean average yellow beeswax brings 30 to 32.
Chicago, Oct. 10. R. A. BURNETT & Co.

ST. LOUIS.—The demand for both comb and extracted honey is improving right along, and stocks are quite ample. We quote extra fancy comb honey, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.50 to \$2.75. White extracted honey brings per pound 9 cts.; light amber, in cans, 7½ to 8; amber, in cans, 6½ to 7; in barrels, 5½ to 6. Clean average yellow beeswax brings 28½.
St. Louis, Oct. 9. R. HARTMANN PRODUCE CO.

TEXAS.—I note quite an improvement over the latter part of September as compared with the first and previous month. The supply is pretty well exhausted. Honey is light amber, but of good flavor; bees gathering very little at this time. No sections are used here. No. 1 light-amber bulk comb honey is selling at 9 to 10; light amber in cans, 7 to 8. Clean average yellow beeswax brings 25 cts. for common.
Sabinal, Texas, Oct. 2. J. A. SIMMONS.

ALBANY.—Receipts of comb honey are behind hand more than usual this season, especially when there is a good crop as there is this year. We strongly advise shipping promptly to meet this month's demand, which always brings the best prices of the season. We quote extra fancy comb honey, per pound, 16 to 17; fancy, 15 to 16; No. 1, 14 to 15; No. 2, 13 to 14. White extracted honey brings 8; light amber, in cans, 7½; amber, 7. Clean average yellow beeswax brings 30 to 32.
Albany, Oct. 12. H. R. WRIGHT.

PORTLAND.—Demand is light. Comb honey is coming in slowly; quality not up to standard. Tendency is to run to light amber and amber. Prospects for later shipments of comb honey are very fair. Producers seem to be holding for higher prices, which I do not think will materialize. Fancy, per case, brings \$3.60, 14 oz.; No. 1, \$3.50, 12 oz. or over; No. 2, \$3.25, 11 oz. or over. White extracted brings 9; light amber, in cans, 8; amber, in cans, 7. Clean average yellow beeswax brings 28 cts.
Portland, Oct. 3. PACIFIC HONEY CO.

INDIANAPOLIS.—Better demand for extracted than for comb. The quality of both is of the best. We are unable to obtain enough comb and extracted, due to producers holding for a much higher price than the market is offering. We are anticipating that a great amount of extracted will be offered at 6½ to 7 cents in the next two weeks. We quote fancy comb honey, per case, at \$3.75 to \$4.00; No. 1, \$3.50 to \$3.60.
Indianapolis, Oct. 9. WALTER S. POWDER.

TORONTO.—There is no change in the price of honey since our last notice. The demand in this Province seems to be very good and the quality of the honey is very much above the usual grade, a large portion of it being white clover. Owing to the lateness of the buckwheat crop and the dry season, the crop of buckwheat honey will be light.
Toronto, Oct. 11. EBY-BLAIN, LTD.

MEDINA.—No new features of importance have been presented in the honey market the past two weeks. The offerings of a number of large lots of California extracted from producers and dealers have occasioned some surprise. The movement of Eastern comb since Sept. 25 has been steady with prices unchanged.
Medina, O., Oct. 10. THE A. I. ROOT CO.

Gleanings in Bee Culture

E. R. ROOT

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POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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Home Markets for Honey

If you are developing a local market for your honey, you will be interested in the following from a Wisconsin producer, who writes regarding the 64-page book, "The Use of Honey in Cooking." He says:

"We received the honey recipe books O. K. and were more than pleased with them as they were one of the finest boosts for getting honey before the people that we could have procured.

"The people were clamoring for them and our booth was one of the leading attractions at the fair.

"One of the members of the association who was putting out small glass containers sold one to a lady from Minneapolis, who was attending the fair here. This morning he received an order that she had taken among friends at home to ship 25 gallons of extracted honey to Minneapolis. So it pays to advertise, and your recipe books do the work." (Name on request).

We offer these books, "The Use of Honey in Cooking, 64 pages, 115 tested honey recipes, with many facts regarding honey, at 10 cts. each, postpaid. In quantity lots with your advertisement on the back cover (no other address given in the book) as follows:

100 copies, printed as above....\$ 4.50
250 copies, printed as above.... 9.25
500 copies, printed as above.... 17.25
1000 copies, printed as above.... 25.00

If sent by mail, postage extra.

Order a quantity and watch your honey go.

The A. I. Root Company
Medina, Ohio

Deposit your Savings
with
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A.T. SPITZER PRESIDENT	E.R. ROOT VICE-PRESIDENT	E.B. SPITZER CASHIER
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ASSETS OVER ONE MILLION DOLLARS

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

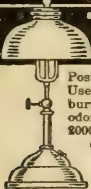
Circular free
Queen-breeder

J. P. MOORE,
Route 1, MORGAN, KY.

HONEY-JARS

No. 25 one-pound screw-cap, \$4.75 a gross. Discount on quantity. Light honey, clover flavor, two 60-lb. cans, 9 cts. per lb. Sage honey, 9¼ cts. Catalog of apiarian supplies and bees free.

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Apiaries: Glen Cove, L. I.



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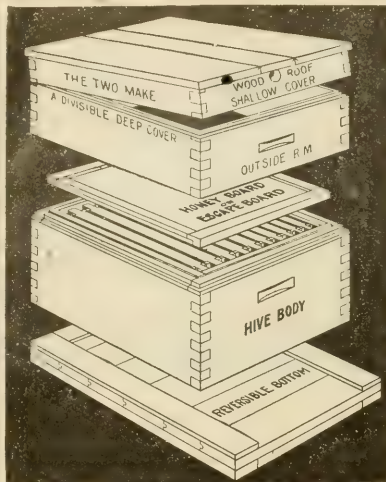
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
- Five-gallon Cans
- Five and Ten Pound Pails

Four per cent Discount on Goods for Next Year's Use

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

A. G. Woodman Co., Grand Rapids, Mich.

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies—full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

BEE SUPPLIES

Send your name for new 1916 catalog.

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128 Grand Avenue, Kansas City, Mo.

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

3 Garden Tools in 1

The **BARKER** Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.



Barker Mfg. Co.
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For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

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Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Wanted--Honey

Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery---a month or more in some instances. Goods ordered now carry 4 per cent discount during October. Send in your order just as soon as you find out just what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. **PREPARE!** Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make it into

Dadant's Foundation

for you.

If you prefer, we will pay you our best trade price in exchange for BEE SUPPLIES.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED at all times.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor
A. I. Root, Editor Home Department

H. H. Root, Managing Editor
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

OCTOBER 15, 1916

NO. 20

EDITORIAL

The Cause of Swarming

IN a little discussion between J. E. Hand and J. E. Crane, in this issue, page 969, we believe the majority of our best beekeepers would favor Mr. Crane's viewpoint.

Amount of Stores Necessary to Winter a Colony

THIS difficult question is answered very satisfactorily by Mr. Doolittle in this issue in his department, page 972. While he admits that a colony can be wintered on one pound of stores a month, this amount is altogether inadequate, because bees, in order to do well in the following spring, must be "rich in stores." He therefore recommends feeding up in the fall with more than will carry them thru. It is pretty well agreed now that fall feeding is much better than scant feeding, and then feeding again in the spring to stimulate.

Late Fall Feeding; a Precaution

MR. W. C. MOLLETT, in this issue, urges early feeding in the fall. In the main he is correct; but one precaution should be noted. Feeding in early September may start brood-rearing, with the result that a considerable amount of stores will be consumed. While the conversion of syrup into young bees is a splendid thing, the process sometimes leaves the colony short of stores; and it may have to be followed up by later feeding; and certainly all the colonies should have a careful inspection. If one is obliged to feed after cool weather sets in, he should make a syrup $2\frac{1}{2}$ parts of sugar to one of water. It should be given hot, and all at one feeding.

Experiment Station Rears Queens

THE Agricultural Experiment Station of the University of Wisconsin in Bulletin 268, May, 1916, gives a brief report of a

new work that they are taking up, recognizing that Italian bees are more resistant to European foul brood. Efforts were made during 1915 to develop queen-rearing in connection with the work of the Economic Entomology Department. Mr. C. A. Aeppler is in charge of this work. One hundred and twenty-six queens were sent out to beekeepers in twelve counties. The queens sold at 50 cts. each. A larger number of queens will be reared this season in order to meet the expected demand.

Bees Fertilize Cocoanut Blossoms

IN the journal of the Jamaica Agricultural Society for July, 1916, page 273, is an interesting account of the value of bees to cross-pollinate the cocoanut blossoms. The cocoanut bears the two kinds of flowers—the male and the female, altho those on the same stalk do not mature at the same time. Generally, too, there is only one set of flowers open, or ready to fertilize, or to be fertilized, on a cocoanut at one time, this being one of nature's devices to guard against inbreeding or self-fertilization.

It has been noted that, on cocoanut estates where bees are kept, the yield is phenomenally high. Palms of five and six years bear heavy crops, and the bunches are well filled.

Beekeeping on the Indian River, Fla.

IN this issue Mr. L. K. Smith gives a rather discouraging view of the out-apiary business on the Indian River in Florida. But if one were going to keep bees for pleasure and profit, putting the main emphasis on *pleasure*, we do not know of any place in the United States where one could get more solid enjoyment than operating a series of yards up and down the Indian River. We have been there. In fact, the editor, three years ago, got back his health in making a cruise on that same river, an

account of which was given in GLEANINGS for April 1 and May 1, 1914, February 15 and March 15, 1915.

Mr. Smith mentions having very small yards. He might with profit have had larger ones; nor was it necessary for them to have been so far apart, unless there was difficulty in finding a suitable location. Mr. O. O. Poppleton made a success of the out-yard business on this river some years ago. He secured health and pleasure both.

Distance Bees Fly in Quest of Stores

THE two Millers, page 966, on the question of how far bees fly in quest of stores, are at loggerheads. While we must admit that bees will fly from three to five miles for nectar when conditions are favorable, it is our opinion, from considerable observation, that they very often do not go much over a quarter of a mile. Very recently we had occasion to move the Waterworks yard scarcely a mile in an airline to the Blakeslee yard.

Our man was asked to see whether any bees returned to the Waterworks location next day. Not a one. Apparently the bees of the moved yard had not been in the habit of going more than half a mile, and they might have been going less. This was in the aster bloom.

We shall have to conclude that there is no invariable rule. It is wide of the truth to say that bees will not fly five miles sometimes; and it is equally erroneous to say they will not go more than a quarter of a mile. That they will generally not go more than a mile in average localities and seasons we believe is not far from the truth.

Outdoor vs. Indoor Wintered Colonies

THERE is a general belief among our best beekeepers that, while colonies wintered indoors consume less stores, colonies of equal strength wintered outdoors will be in better condition for the harvest. This belief is founded on the fact that outdoor-wintered bees will begin rearing brood earlier than those indoors. Breeding causes consumption of stores. Young bees in the spring are a big asset. If so, the greater consumption of stores has been a good investment.

In this issue, in his department of Stray Straws, Dr. Miller says that, since he has put a furnace in his cellar, and allowed the door to be open much of the time, he thinks his bees are just as vigorous in the

spring as those wintered outdoors, and he is probably right. Since he put in the furnace he has better ventilation and a uniformly higher temperature.

Outdoor air, it is said, has a tendency to favor breeding. Some years ago one authority on indoor wintering made the statement that he did not want too much fresh air in the cellar because it started breeding; that such breeding would cause a larger consumption of stores, and dysentery.

There may be something in this; but we believe that Dr. Miller is on the right track in giving an abundance of ventilation, and with it a higher temperature. If the outdoor colonies have any more vigor than indoor colonies it is because they have young bees; and young bees, of course, mean early brood-rearing. We are perfectly well aware that early breeding in the cellar is attended with some risk, especially to beginners; but this is not saying that an expert cannot avert dysentery.

Honey-crop Conditions and Prices

It is clearly evident that there was a shortage in the yield of honey in the Imperial Valley and clear up thru California. There was also a shortage in Idaho, where such a large crop of comb honey was produced last year. There was likewise something of a shrinkage in Colorado and other mountain states.

However, the big crop of honey, both comb and extracted, in the East at this writing, will in all probability more than offset the shortage in the West. The honey-market quotations given in our last issue and in this issue, confirm this in that they show a slightly easier market than last year. Taking everything into consideration, it is quite remarkable that the market is as firm as it is.

While the quotations over the country generally would seem to indicate a better demand for both comb and extracted, the demand at Medina is certainly brisk, and prices are holding fairly firm. We do not understand why this is so unless it is because of our publicity campaign in the shape of some full-page advertisements in the *Ladies' Home Journal* and *Good Housekeeping*. Our readers will notice that these put strong emphasis on honey as a food and condiment and on our own brand in particular.

It is evident that producers are beginning to unload their crops, and they are doing it at their convenience. Too much unloading at one time demoralizes the market.

It is well to bear in mind that the market on *comb* honey will ease up as soon as freezing weather comes on. The trade is afraid to get it in cold weather, and more afraid of its granulating afterward. The experience of last year has been an expensive object lesson to many. Comb honey should if possible be shipped before the holidays; for after that time the demand will be sluggish, if experience means anything, until the next year's crop is in sight.

Honey-producers as usual are making the mistake of extracting their honey too green. The result will be that some of it will sour in the open market. Such practices will have a strong tendency to disgust the trade and depress prices.

Exportation of American Honey into Germany.

In the "Daily Commerce Reports" issued by the Department of Commerce, Washington, D. C., is a report from Vice-consul Ernest L. Ives, Breslau, Germany, under date of August 28, on the subject of the German bee industry. Among other things, he says that the present yearly production of honey and wax in Germany is between five and seven million dollars' worth.

He refers to the migratory beekeeping practiced by the Germans, or how bees are moved around on "wandering carts." These carry from 25 to 30 hives, such carts being moved from one place to another. They are in reality portable house-apiaries. Besides these special moving apiaries on wheels, something over 375,000 hives are transported on special trains to the heaths near Luneberg and Oldenburg.

Under the heading of "Imports of Honey and Artificial Honey" he furnishes a table of the amounts of honey from the United States and other countries sent into Germany. With the exception of Cuba the United States stands at the top of the list.

The price of German honey is 65 cts. per lb.; and this extraordinary increase in price, the vice-consul says, is mainly due to the very poor harvest in the spring and summer of 1915 and of this year, and also to a falling off of imports. Why he makes no mention of the great war in Europe in this connection is not easily understood. In ordinary peace times 65 cents is an extraordinary price.

Under the head of "Criticisms of Methods of Collecting Honey" he has this to say:

As previously mentioned, large quantities of honey have been imported from America.

Beekeepers complain of the competition of this honey, which is sold at very low prices on account, as is claimed, of its "inferior quality." It is stated that honey in wooden tubs is imported by wholesale dealers at a price of \$3.80 to \$4.75 per 110 pounds. Adding the costs of packing and transportation, it can be retailed at \$0.10 to \$0.13 per pound. This low price is said to be due to the methods of collecting the honey in the countries of origin, the swarm being killed by sulphuric acid; this affects the aroma of the honey, which is also contaminated by the corpses of bees, chrysalises, and other impurities, whereas German honey is won by the centrifugal process. Further, the German product is usually packed in glass jars and cans. Recently tubes containing one-eighth to one-half a pound have been much in use. Wooden tubs are not considered practical for the transportation of honey, since wood is said to spoil the flavor.

The best honey imported from the United States is packed in tin canisters containing about 55 pounds, two canisters being usually packed together in a wooden box. Honey from South America is imported in tubs of 165 to 220 pounds.

Evidently the vice-consul, Mr. Ives, has got some things a little mixed. In the first place, honey is not shipped from America, or at least from the United States, in tubs;* and in the second place, the quality is not affected by the methods of killing bees. Honey from log gums and box hives is not exported; and even when such honey is taken in the old-fashioned way, "sulphuric acid" is not the agent for killing the bees. He evidently means the fumes of sulphur.

It would be quite interesting to learn where the vice-consul gets his information about American honey coming in tubs of 110 lbs., and the poor quality of it being due to the carcasses of dead bees and to the use of "sulphuric acid" when killing the bees. He possibly meant sulphurous acid or vapor of burning sulphur. As a matter of fact, sulphur dioxide is the agent used; *i. e.*, the gas of burning brimstone.

When he speaks about artificial honey he is probably taking hearsay. While it is presumably true that adulterated honey might be shipped to foreign countries and sold as honey, it is evident that the writer has got things a little mixed.

Probably some of our German correspondents can enlighten us; for the German beekeepers themselves, who know anything about American methods, know that our box hives or old log gums do not produce any honey that goes beyond the locality itself.

* Possibly he means "kegs."

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



JAN GREVE, of Bergen, Norway, writes that the statement in GLEANINGS that "The demoralization of the beekeeping fraternity of all Europe seems to be complete," greatly overstates the case.

Outside the direct theater of the war, beekeepers are going along as usual, except that they have to pay a high price for sugar.

YEARS ago, when I wintered in a cellar so cold that it had to be kept always closed, I always had an uncomfortable feeling that in spring the bees were not so vigorous as those wintered outdoors. But since a furnace is in the same cellar, allowing the door to be open much of the time, with pure air always, I think the bees are just as vigorous in spring as those wintered outdoors—possibly more so.

ARTHUR C. MILLER hints at skepticism as to the need of having apiaries 3 miles apart, reporting crops utterly different at a distance of $\frac{1}{4}$ mile, p. 866. Please play fair, Arthur. In ordinary cases, with somewhat level ground, there has been plenty of proof that bees will go several quarter miles, and it's ordinary cases we're talking about when we mention 3 miles. Now will some one (say from near Providence) make out a list of the exceptional cases, and tell us the proper distances for each?

LET me warn the beginner not to take too seriously what is said by Gerstung, page 869, against trying to breed toward non-swarming. We are told, "The reader must bear in mind that the writer had in mind only conditions prevailing in Germany." So it may be that we are to think only of Germany when told that, if we could eliminate the swarming impulse, "the bees would become degenerate, and slowly, yet surely, would go toward extinction." Certainly it hardly appears so in this country. If the Dadants, with only 2 to 5 per cent of their colonies swarming, find their bees going toward extinction, they have kept very quiet about it. For more than half a century I've been trying all I could to prevent swarming, breeding from colonies that never offered to swarm; and the fact that the average yield per colony has doubled is not very strong proof of degeneration.

MR. EDITOR, you ask, p. 837, whether I'm not attaching too much importance to iron in honey. You will hardly think so if you realize how much importance physicians attach to administering iron, even tho "in

very minute quantities," in readily assimilable forms. Please recall that, altho iron is present in the human body in minute quantity, that minute quantity is necessary for health, and even life; that that minute quantity is present in honey in the very best form for direct assimilation; that in sugar it is found not at all; and then figure out for yourself how much importance should be attached to it. "Talking about it for bee-food," were you? Well, don't you believe the all-wise Creator knew just about the right amount of iron to put in for bee-food? And if he put a very minute quantity of iron in it, do you believe you can have first-class bee-food without any iron at all?

[But the amount of iron is a very small part of one per cent. Along with it are other elements in small quantities, like lime, sodium, sulphur, magnesia, and phosphoric acid. Why should not these be considered with iron? After all, is it not the pollen, the dextrose, and the levulose which are present in larger quantities—particularly the last two—that are the elements that make honey better than syrup that is only sucrose?—ED.]

MR. EDITOR, I understand, p. 776, Sept. 1, you can tell by the flight at entrance when bees need more super room. But you don't say how. I can't tell by watching the entrance whether another super is needed or bees have double the room they need. Please tell me how. [Neither can we determine, by watching the entrance only, whether another super is needed, or whether bees have double the room they need, and we do not believe that any one else can. If you will put on your specs and read over again what we have said, you will see that we stated that the condition of each colony, in the incident referred to, was determined by a combination of three different ways: Watching the flights of the bees going into the entrances; tilting up the supers at the back and looking under; and by hefting or lifting the back end of the whole hive. Of course, if you pick out the sentence at the head of the first column, page 776, you might infer that the diagnosis was made solely on the indications at the entrance; but the next sentence and all the rest of the article shows that we used every means available without resorting to lifting out the individual frames. It takes but a small fraction of a minute to heft a hive or to tilt up a super, the entire diagnosis not taking up much more than the fraction of a minute.—ED.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The first general rain of the season is falling today (Sept. 30).

I was glad to have Mr. Frank E. Cliff, page 614, July 15, verify my comments as to the handling of honey by the employes of the Postoffice Department. The reading of Mr. Cliff's article will be well worth the time.

Mr. Doolittle's article on the middlemen, page 782, Sept. 1, is timely and to the point. The fact of the matter is that there must be a middleman, and if the beekeeper thru the medium of organization is not ready to fill the gap it will continue to be filled by one who exacts a profit for his labor.

Our annual weather records are computed from July 1 and all rain is figured from that date. Up to this date (Sept. 27) we have had in this city an inch as measured by official records, yet the value to the beekeepers of this amount, falling as it has during the summer months, amounts to practically nothing as a factor on next year's crop.

J. L. Byer says, page 780, Sept. 1, "If there is anything to be made in any business, the man who stays with the job is the one who will win out in the end"—and he is right. My father spoke those words to me twenty-five years ago and he won out. However he was later nearly ruined financially by the great Kaw Valley flood of 1903.

It seems I owe Mr. M. J. Meeker, our county inspector, an apology, in that I quoted him as favoring the caging of queens in the treatment of black or European foul brood. Instead he informs me he is opposed to the caging of queens in the treatment of this disease, giving as his reason that a queen not showing sufficient strength of stock to resist the disease in the start is not worth any future trials against the disease. His reasoning is backed by experiments, and to most of us must seem logical. I am pleased to make this correction as I confused his conversation with that of another party.

IMPERIAL VALLEY'S PECULIAR SEASON.

I am handed some notes taken by a friend during a conversation with Mr. J. W. George relative to conditions in the Imperial

Valley, which I herewith present with a few remarks of my own. According to Mr. George there are several conditions that have worked against the success of the beekeepers of that section during the past season. A change of climate is given as one cause, but I am of the opinion it should not be termed a change of climate so much as a peculiar season, which has been the case on this side of the range. There was an increase in the acreage of cotton and consequently a decrease in the acreage of alfalfa; a shortage of water for irrigation purposes, causing a lighter secretion of nectar; grasshoppers; a warm early season with a short flow, followed by cold, reducing the bee force greatly. Mr. George says that the average per colony will not exceed 60 pounds, the normal yield being from 120 to 180.

THE END OF THE SEASON.

With the close of this month (September) the season of 1916 may be said to have closed. It is possible there may be a few localities where a light flow of surplus may be gathered, but they are few and far between. In southern California as a rule the season has been a sad disappointment, and this is also true of the central and northern valleys to a large extent. Inyo County seems to have been favored by a good crop if all reports are true, while the Imperial country is by far below its usual output. In this part of the state the early prospects were never better up to the first of March, but at this time the rain stopped short, and we were the victims of warm dry weather that shortened our crop materially. So we now start thru another winter with high hopes that only a beekeeper can possess. When a beekeeper loses hope it is equivalent to an apiary for sale or the beginning of a run-down yard that no one would pay much for.

[Early in the season, the prospects for a big yield in California were never better. The rains had been coming on just right; and had it not been for the hot dry winds there is every probability that there would have been a big yield. The shortage of the crop in California and other parts of the West has offset the big crop in the East in the clover region. Had there been a large yield in the West as well as in the East, prices certainly would have taken a tumble. As it is, they are nearly holding their own in the East, and are more than holding their own in the West.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



A good-looking lot is that class in beekeeping at the Ontario Agricultural College summer school, page 800, Sept. 1. I notice nearly half of them are women.

Very little surplus honey was gathered here in Vermont in August. Honey crop is rather poor except in one county, where it is very good.

I have heard, at one time or another, a good deal about the "king-bee," but never expected to see one. But here is the next thing to it, on p. 795, Sept. 1, a real "Bee King." Glad to make his acquaintance.

The method employed by A. E. Ault, of Bradentown, Fla., as given on page 807, Sept. 1, for making increase, is a most excellent one, as it leaves few or no weak colonies to be built up later. It also helps in keeping down swarming.

Dr. Miller, I am interested in the advice you give Wesley Foster, page 677, Sept. 1, in regard to the use of honey. You say, "I would like to have you live longer." Are we to understand that the moderate use of sugar will shorten a man's life, or that the use of honey will lengthen it?

That is an important point made by the editor, page 468, that honey kept at a temperature of 130° for two or three days is much less liable to granulate than when raised to 160° for a short time. Is it not also true that honey is much less liable to granulate if it is warmed and bottled before it has first granulated?

Mr. H. H. Kollister's method of securing straight combs by the use of a sharp triangular top-bar, page 737, Aug. 15, takes one back thirty-five or forty years, when we used them, and we found it was a great help if the rear of the hive was raised a few inches. There was less danger of their jumping from one frame to another.

Page 719, Aug. 15, Mr. Doolittle says, "I am sure that every beginner will do well if he removes the largest patches of drone comb in all his hives, replacing them with worker comb except in such colonies as are set apart as breeders." Few persons have

any very pronounced ideas on this subject. I am often surprised at the large amount of drone comb I find in the hives of those thought to be pretty good beekeepers, and sometimes almost in the center of the brood-chamber.

We are reminded these days of that beautiful parable of our Lord on preparedness. He said that ten virgins went to attend a wedding. All took lamps or torches with them, for the wedding was to be at night. Five were thoughtful, and took a supply of oil as well as lamps. The others did not think they would need any oil. "How foolish!" we say; but how like a multitude of beekeepers! So we have at this season requests for a little foundation. Another wants a few hundred or a few thousand sections, and perhaps another a hive at once for their one lone colony has just swarmed. How foolish to keep bees, and not be prepared to supply them with what is needful for success!

Prof. Baldwin, in his department for July 1, relates his experience in introducing queens by that old plan called the "honey method." It seems really surprising that he should be able by this method to remove an old queen and introduce a virgin at once successfully. If this can be done, and not fail more than one time in ten, it will prove of great value in superseding old queens during spring or early summer. If one has the conveniences for introducing in this way it need not be very fussy nor take a great amount of time. I find in trying to introduce again in this way that it is a little difficult to roll a queen in thick honey. Perhaps the temperature of Florida would make it thin enough, but I suspect a little thinning would be better for our climate if we try to work rapidly.

SUPERS ENOUGH FOR A WHOLE YARD.

That auto truck as pictured on page 733, Aug. 15, certainly looks pretty good. As we have been using one for six or eight weeks I can give my testimony that it is a good thing for out-apiaries. Where yards are ten or twelve miles away it saves lots of time. How nice to take supers enough for a whole yard and all the help needed at one load, and then to get there in a quarter of the time required by a horse! and then to be able to take off a ton or more of honey and bring it all home the same day!

SELECTING THE BREEDER.

P. C. Chadwick, page 718, Aug. 15, gives some rules for selecting a breeding queen. This is a matter of more importance than we have been accustomed to think—of more importance, I believe, than is the breeding of domestic animals or birds. Years are required to change a herd of dairy cows, while a yard of one hundred colonies of bees may be changed in a single season.

* * *

THE SHAKEN SWARM IN THIS LOCALITY.

"Here is what happens in this locality when the shaken-swarm plan is practiced," says Wm. Beucus, page 736, Aug. 15. "If shaken on to starters, almost certain absconding; if shaken on to full sheets, very much less absconding; if shaken on to a set of clean, sweet-smelling worker combs, no absconding whatever." Now, this is doubtless true to some extent in most places, tho not as bad as in his "locality." Bees seem especially inclined to abscond when shaken on to a full set of frames of foundation. We found, the past season, that if one or two frames of drawn combs are given with a hive full of foundation it will usually hold them; in fact, I think it answers about as well as a hive full of combs.

* * *

PUT THE BLAME IN THE RIGHT PLACE.

We sometimes wonder why the flowers do not yield more honey—why the bees should often find it necessary to visit many hundreds of flowers to secure a load of nectar. Too often we forget that the object of the secretion of nectar is to secure cross-fertilization; and if the amount were large a load would be found in a few flowers; but if only a small amount is found in each flower a large number must be visited, and thus the pollen scattered over a wide area. A bee finding a scanty yield of nectar in the flowers of one apple-tree naturally flies to another; and by so doing it gives us the best kind of cross-fertilization.

* * *

CARROT HONEY!

Long ago an old pessimistic preacher declared there was "nothing new under the sun." We can excuse him, perhaps, for he did live in a rather slow age. Had he lived in this age of steam and electricity, of automobiles and flying-machines, I think he would have thought there were many new things under the sun. Even in beekeeping there is something new to learn each year; and I have seen something new recently. One of our helpers reported in August see-

ing bees working on wild carrot, gathering honey. "Impossible!" I said. "Bees do not work on that plant. It isn't in the catalog of honey-plants in the A B C and X Y Z." Then another reported seeing bees at work on it. I had noticed the bees in our home yard were storing a little in brood-chambers. Then I went and looked myself, and, sure enough, there were the bees walking around on the great flat umbels of this plant, lapping up the atoms of nectar.

* * *

JUST WHAT IS THE CAUSE OF SWARMING?

There are few things we would more like to know positively and accurately than the cause of swarming. Mr. J. E. Hand, page 599, July 15, gives his views, some of which do not seem to correspond with our experience among the bees. He says, "Give me a queen of undiminished fecundity and I will show you a non-swarming colony." This year we have had many colonies swarm with young queens that have been laying but a short time. Indeed, a young vigorous queen seemed but poor protection against swarming.

Mr. Hand further says, "Queen-cells are inseparably associated with swarming." We have found colonies repeatedly swarming without a trace of queen-cells upon the combs of their hives. He gives us to understand that queen-cells are started largely for the purpose of superseding the queen; that the queen cares little for them until they are sealed, and then she is so put out that there is a sort of insurrection in the hive, and out go the bees. And yet we often find the queen among the last to leave the hive. More, we often find them swarming before the oldest queen-cell is sealed. If sealed queen-cells were the cause of the trouble we should only have to see that there were no sealed cells until the queen had regained her fecundity to prevent all swarming, yet this is no sure method of prevention.

He also tells us that the queen "cannot control egg production," and that a queen will scatter her eggs over the combs of a small hive and become exhausted sooner than in a large hive. This does not harmonize with my experience.

If Mr. Hand's theories are correct, why is it that bees swarm less in hives well ventilated than in hot poorly ventilated hives? Is the fecundity of the queen greater in such hives, so that she can keep right on thru the season? Is the fecundity of the queen greater in seasons of scarcity when few swarms issue than in seasons of abundance? We know the amount of brood in such seasons is far less.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



Bees seem to be in unusually fine condition this fall all over Florida. Rains have been plentiful but not severe, encouraging vegetation, but still allowing bees fair weather for gathering.

How many in our land of sunshine have ever planted or grown to flowering size either or both the *Bigonia venusta* and the *Antigonon leptotus* or Mexican pinkvine? They will pay well for the beauty, and the bees are "crazy" over them. The latter blooms from May to frost, the former only in early spring, but both are a riot of color.

SWEET CLOVER AND ALFALFA IN FLORIDA.

Several inquiries have come in regard to sweet clover in Florida. So far as I know, sweet clover has not been acclimated in this state. I can only hope that it may be at some future date. If the government experts can succeed in discovering a species or variety of sweet clover that will grow in a warm moist climate in sandy soils, it is *sure* that Florida will be doubly valuable as a honey or forage state. They sent the alfalfa line north from about Denver to Canada, and into Canada; and why may they not sweep the hand of the floral dial away to the Southland, for both sweet and alfalfa clovers? Alfalfa is growing to a slight degree already along the drainage canals of the east coast in St. John's Co. But it is as yet very limited in area, and lives only three years. Then it dies and must be replanted. Probably it gets "wet feet" by its roots reaching water level.

FINAL NOTES ON THE HONEY CROP.

Honey-crop reports for the state are now pretty well in. Orange was poor in quantity and quality; saw palmetto only about a third of a crop; mangrove the same; but cabbage palmetto was a surprise. It not unusually ends by July 20; but this year bees were gathering from it as late as Aug. 14. In most locations the honey from the cabbage palmetto is mixed by the bees with other honeys—for instance, on the east coast with mangrove. But it is secured in almost its original and pristine purity on the west coast between Bradentown and Fort Myers. Pennyroyal will soon begin blooming in the southern portions of the peninsula. Partridge-pea honey is quite abundant in the high pine sections; but it is always dark-red, strong in flavor, and unde-

sirable as a table honey. In the tupelo sections our correspondents indicate a good flow from the tupelo, but poor from the ti-ti. Taking the state as a whole, I should say the season of 1916 has been about an *average*, perhaps slightly below.

Apropos of the honey from the cabbage palmetto (*Sabal palmetto*) referred to above, we might mention a letter received from a beekeeper in the southern half of the state. He writes of that honey: "The less I have of it the better I like it. It may be some other tree, flower, or shrub that blooms at the same time that yields the worst honey I get. It is so thin it runs like water; and, when first uncapped, often bubbles like gas in all the cells. It is acrid and very acid, tho nice-colored." I am sure our correspondent is "getting *his* mixed." The clear color, the thinness, the bubbles, all prove cabbage palmetto. These three qualities inhere in no other one honey in Florida, so far as I can determine. But the acidity and acridness—no! No honey has less of both qualities than cabbage palmetto. In fact, it is, when pure, the purest and mildest honey in the state; and, tho thin, it is delicious in every way. The bubbling when first uncapped is very characteristic of this honey; but it is not due to fermentation, and all bubbles disappear on extracting the honey. They show only in the cells just after they are uncapped. Therefore our correspondent's bees *must* be gathering some other clear but pungent honey at the same time that they gather from the cabbage palmetto. What it is I have no data for determining.

NECTAR FROM COW PEAS.

Another apiarist, writing from Fort Ogden, Fla., wishes to know what it is that his bees gather from cow peas. He says he never sees the bees on the blossoms, but only at the base of the pod where it joins the stem. In the case of certain plants the bees gather nectar, not from the blossoms, but from the stem bases. For example, the *Cassia chammachrista*, or sensitive pea, this year the bees seemed to work on the blossoms in the early morning, on only the stem bases and leaf bases of the stalks later in the day. Usually they work not at all on the blossoms. But I have not heard it said or noticed personally that they do not work on the blossoms of the cow peas. It may be that our correspondent's bees are gathering the secretions of certain aphides or plant-lice, tho it is possible that the cow pea also secretes nectar at the pod-bases.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



The gasoline age is beginning to benefit the beekeeper more and more. Altho a number of beekeepers have taken advantage of the use of motor vehicles of some type or other for a number of years past it has been during only the

last two years that they were more abundantly adopted for apiary work. Inquiries have been coming from quite a number of beekeepers contemplating the purchase of an automobile or truck for beework, and desiring certain information regarding them before making the purchase. This indicates a still greater use of the auto during the coming years.

For the small beekeeper the larger, heavier, and more expensive auto trucks do not seem to be as practical as some of the lighter machines. There are some who differ with me on this question; but after a trial with both kinds, together with a thoro study of the two in my own apiary work, my conclusion is that more can be accomplished with two half-ton trucks than with a one-ton truck. This is especially true where a large number of apiaries must be visited frequently. In fact, a great deal of the running around to the apiaries can be done far more economically than with a larger and more expensive machine. I still favor two Fords over any other kind of machines for our work.

* * *

CO-OPERATION IN TEXAS.

Co-operation and organization have been uppermost in my mind for many years, and the readers will remember that I have called attention to this important question quite frequently in these columns. I believe thoroly in a united effort of the beekeepers toward a better marketing of their products. It not only helps them but everybody else who is dependent upon them. Let the beekeepers get a good price for their product, and not only they will thrive, but the supply-dealer, the manufacturer, and everybody else who trades with the beekeepers will thrive. For this reason all these interests should lend a helping hand where beekeepers are endeavoring to band themselves together for the purpose of making their vocation a more profitable one, not only to themselves but for all concerned. We are trying to do this very thing in Texas today,

and it is my sincere wish that the efforts on the part of the Texas beekeepers in this direction may be crowned with success.

While Texas honey prices were anything but satisfactory a little over a month ago, we are getting better prices now. The market is much more steady, and the demand is keener. All this occurred in spite of the information that there were still great quantities of honey in the hands of numerous large producers, together with the approach of the autumn months and cool weather during which the sale of honey is usually curtailed. Extracted honey, too, is on a firmer basis at this time than it has been for a number of years, and the supply has been rapidly decreasing.

Information about the cause that has brought this condition about is lacking. Perhaps none of us have thought about it seriously enough to ascertain the real cause. Perhaps it may be attributed to the general spell of prosperity that has spread over the country. Even if this be true I cannot help but feel that our efforts to organize ourselves for better marketing of our honey and other products has already had its effect in that the beekeepers were awakened and just simply quit throwing their honey away at low prices. They are all asking more for their honey now than before the agitation of organizing began. Let's keep the good work going.

* * *

SOME DIFFERENCES BETWEEN THE NORTH AND SOUTH.

It sounds rather strange to read on page 838, under "Honey Crop Conditions and Prices," the following sentence: "As soon as the crop begins to pour into the market we shall be able to get more definite information"—strange because here in the South we have been pouring our honey into the market ever since April and May, and at this time are just about "winding up the season" with what scattering lots of honey there may still be left unsold. There does not seem to be any large quantity of this, and the demand is keener than it has been for some time. It is doubtful whether any honey will have to be carried over the winter, and the usual winter and very early spring trade in honey that has been created during the last few years will have to go begging for want of a supply.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



BE SURE TO HAVE ENOUGH.

"What is the quantity of stores needed by a colony of bees during the winter?"

There have been various estimates at different times by different writers, the amounts ranging from 7 to 35 pounds. This question is surely of some importance to beekeepers, for, if an average colony of bees may be wintered safely on 7 lbs. of honey, it is of no use to let them consume any more, and we might as well save the 28 lbs. of the higher estimate. But from past experience I have found that scanty stores often prove a nuisance, in that it is better to have more stores than the bees consume than to be obliged to feed in early spring.

"But suppose we call the amount 18 lbs., or half of the higher estimate—how would that do?"

I am not sure but that it might be a mistake to set down any stated amount as absolutely and exactly sufficient, for the reasons that colonies not only differ in numbers, age of bees, etc., but winters also differ in duration, in suddenness of changes, high winds, etc., and the number of sunshiny days or stormy days even have some influence on the question.

Colonies which are wintered in the cellar consume less honey than those wintered out of doors; but in localities where the winters are comparatively mild, if the bees are strong in the fall the difference between outdoor and indoor wintering is not so great as some would have us think. Most beekeepers agree that comparatively weak colonies will consume more stores according to their numbers than the more powerful ones, owing to the necessity of producing heat thru the consumption of stores. For this reason some contend that it is undoubtedly better to winter the weak colonies in the cellar and the populous ones out of doors. I have had colonies which would consume in the cellar only a pound of stores a month, and come thru in the best condition, while another colony in the same row, and apparently having the same number of bees and in the same condition, would consume from three to four pounds a month. To have limited all to a winter's store of one pound a month would show the short-sightedness of any apiarist.

"But, all things being equal, is it best to leave a strong average colony a large amount of honey, say 30 to 35 lbs.?"

I hold to the larger supply, even tho the

quantity left in excess after wintering might constitute a sufficient amount to cause some to think if it had been sold it would have paid for an ordinary season's management. Those advocating a small amount of winter stores depend upon feeding in early spring to keep the colony along; but from years of experience along this early spring feeding I have found that we are quite likely to be caught in March or early April with a spell of a week or ten days of real winter weather, during which the bees will often fail to go after the feed; and the result is starved colonies or colonies greatly injured by the loss of brood thru a fear of starvation from a too scanty supply. Those advocating the short supply of stores for winter seem to think that brood-rearing can be made to forge ahead much faster by feeding the bees half a pint of thin sweet every day than by any other method; but from experiments along this line for many years I can only think that such is a mistaken idea. By setting apart 20 or 40 colonies and feeding half of them while the other half were left rich in stores from the previous season, but without feeding, and then comparing notes regarding each half the unbiased mind can prove the real truth in this matter. And if we stint our bees without any feeding we compel them to reduce brood-rearing. Any colony which has not enough stores to make the bees feel "rich," or to feel that there is a great plenty ahead, will be much less prone to breed the latter part of March or in April, just at the time an abundance of brood should be started if we are to secure the best results in the early clover harvest. The apiarist who is so fond of his bees that he is willing to go thru with the buying of the feed and the labor of feeding every day, or who will not pass three days without examining them, may be able to remedy any shortage in good time and feed when he sees it necessary; but to those who make bee culture a matter of earnings, and who have also other things to occupy their minds, it seems far preferable to leave the supply largely sufficient in October, and trust in the wisdom of our pets as to the use of that more than sufficient supply.

Of one thing I am sure: None of the honey will be wasted if the colony winters successfully; and an abundant supply, as a rule, tends toward successful wintering. Successful wintering of a colony rich in stores will give a "stronger army" for the honey season than if their stores are controlled and scantily supplied.

GENERAL CORRESPONDENCE

THE RELATION OF TEMPERATURE TO BEE ACTIVITY

BY ALLEN LATHAM

It is doubtful if any form of life is more sensitive to temperature and temperature changes than is the honeybee. This is shown in comb-building, honey-gathering, and in brood-rearing. Only at the most favorable temperature do we see these activities carried on at their best.

It is almost impossible for comb-building to go on with the temperature below 90 or so. Comb built at a lower temperature is not the well-formed and delicate structure constructed under the higher temperature. It is irregular, and heavier. Likewise a temperature above 100 interrupts comb-building. Thus we see the bees when comb-building is in progress striving to keep the hive, or at least that portion where the building is going on, at the desired temperature—carrying on a vigorous ventilation if the hive is too warm, and crowding together to furnish heat when more heat is desired. Few of us but have welcomed the glad sight of hosts of young bees migrating into the supers.

Many of us like to diagnose the condition of the colony from the outside. The flight of the bees tells us much but not all. Lifting the cushion and running the hand over the inner cover or over the mat, as the case may be, will tell much more. It will render a very close estimate of the size of the brood-nest if the super be not yet in place; and if super is in place it will tell to what extent it is occupied. It will not, of course, tell to what extent the super is filled with honey.

This explains why it is so essential to have a large force of bees in comb-honey production. At the present date, Sept. 22, I am enjoying the most remarkable fall flow I have ever known. Goldenrod and asters are profusely abundant, and are holding out unusually long. Yet with this tremendous flow of honey the work in the supers is very slow. Had the bees their July numbers, work would be going on in three and four supers at full blast, instead of slowly in one super. Under present conditions the brood-nest is rapidly disappearing, and the brood-combs are becoming solid slabs of honey. The chief factor to bring this about is temperature, the cold nights sending the bees away from the supers and outer portions of the hive and bringing on a more and more restricted area where the temperature is kept up to the point for

wax-working. As the season comes to a close there will be considerable comb left unsealed, the last honey gathered being left in open cells, the bees not being stimulated to raising the temperature to the necessary point for that work.

We are all familiar with the effect of temperature changes upon honey-gathering. The bees may be booming when the thermometer suddenly registers a fall of ten degrees. The boom is off. Frequently this is because the flowers cease to secrete the nectar; but if the temperature was already rather low, and some flowers like goldenrod secreted at a rather low temperature, the fall in temperature simply stiffens up the bee. She will no longer go to the field, even tho there is nectar to gather.

Brood-rearing progresses only as the force of bees can warm up more comb and keep it warm. Queens will sometimes lay in comb not up to the desired temperature; but the brood will not mature. Whenever a cold night causes the bees to draw away from the outer portions of their extended brood-nest it is a serious setback, for the bees are slow in warming up that comb again.

Warmth attracts bees. Combs attract bees. Warm combs are doubly attractive to bees. I have not investigated to what extent it would be worth while to warm up frames of comb before giving them to a colony, but years ago I discovered the vast advantage of feeding warm syrup over feeding cold syrup. It will be noted at this point why failure so often attends the spreading of brood in the spring. The difficulty is often that the increased comb surface is too much for the force of bees to keep warm, but more often the difficulty is the failure of the bees ever to warm the new comb. Hence the brood-nest becomes two separate units instead of one. Then the one which does not contain the queen rapidly deteriorates, with the result that the brood-nest, after a week or so is actually smaller than it was before the spreading. Breaking the cap-pings of what sealed honey is in the comb will help much; but it would be far better to put that comb in a very warm room and let it stay there till warmed thru before giving to the bees. If one wishes to force his bees in spring let him warm up a number of combs of honey. Remove an outer comb of a colony; move over the combs till

the brood-nest is split, then insert a warm comb. Proceed thus till the warmed combs are used up, then take the combs that have been removed into the warm room, and, after they are thoroly warmed, give them to other colonies in like manner. This is a safe and sane procedure, but must not be done recklessly. If the cappings are broken these inserted combs will almost always show freshly laid eggs the following day.

Too high a temperature is not conducive to good results in brood-rearing. That side of the hive exposed to the sunshine will show a comb well stocked with brood in the spring months; but, likely as not, in July it will show little or no brood. The spring sunshine attracted, but the summer sunshine repelled. The double-walled hive has the advantage here. The newly hived swarm is likely to desert its hive if it is summer, and that hive stands exposed to sunshine. On the other hand, if the day is cool a swarm will run pellmell into a warm hive, while it will almost refuse to go into a cold one. If a swarm has stayed out over night and

is sluggish with cold, try hiving it in a hive which has been well warmed. The rule works both ways, and so we like a cool hive for the hot swarm of the sunny mid-day.

The queen-breeder, too, does well to bear the matter of temperature in mind. Cell cups which have been allowed to become cold are less likely to be accepted, and the queens are likely to be second rate in quality. See that the grafted cups are well warmed before they are returned to the hive. It is my practice to fold a newspaper about the prepared frame before exposing it to the outer air while carrying it to the hive. It is my belief that many failures to get good queens are due to lack of care in this respect. It is true that bees will rear queens under adverse conditions, and so will cows give milk, and hens lay eggs. But profitable queen-rearing, like profitable milk and egg production, calls for thoughtful methods. It will not be time wasted for many of the readers of this paper to put much thought upon the matter of temperature and bee activity.

Norwich, Ct.

WESTERN NEW YORK FIELD MEETING

BY "ONE WHO WAS THERE."

The basket picnic and field meeting of the Western New York Honey-producers' Association, which was held at the home and apiary of Mr. Roy Wisterman, at Dysinger's Corners, N. Y., was a decided success. While Mr. Wisterman does not claim to be a professional beekeeper, he finds it a profitable addition to his extensive farming operations. He says he does not know very much; but one has only to look at some of the fine queens which he reared by the grafting process to know that he is no backlotter at the beekeeping industry.

Lunch was served on tables erected on the spacious lawn by the wives of the beekeepers. The word "lunch" does not do justice, tho, to the "eats" that were served.

After lunch several subjects were taken up. Mr. J. Roy Lincoln, of Niagara Falls, spoke on "The Management of Bees in an Out-apiary." Shortly before fruit-bloom he unpacks his bees and clips his queens. He also gives a super which in reality is another body, as he uses full-depth bodies all thru. Shortly after fruit-bloom, or while it is still on, he places a frame of brood from the lower story in this super. He leaves them thus until the fore part of June, or until clover starts, when he takes one frame of brood and two frames containing

the most honey, and places them in another body—the brood in the center and the honey on the outside, and the rest of the hive filled with empty combs or foundation. This body is now placed on the bottom-board with an excluder over it, and the brood placed on top. The bees are brushed off the combs with a Coggshall bee-brush in order to find the queen. (This is the easier way when there is such an army of bees.) The queen is placed in the lower story with the one frame of brood, and the remaining brood is placed over the excluder to hatch out. The combs are then store combs. If more supers are needed they are added under the brood-combs or directly over the excluder. Ten days later any queen-cells that may have been started are removed; or if increase is desired they are set on a new stand; or an upper entrance is given for the queens to mate.

In this way swarming is entirely controlled. The secret is to get the queen to lay in both stories, and so use up any dark honey that may be left from the preceding season. As these combs are used for store comb after the brood hatches, it is desirable to get rid of all dark honey.

The drones are also controlled. Being over the excluder they cannot escape, and



Western New York field meeting at Dysinger's Corners, August 12.

are killed by the bees. They fall down on the excluder, but never plug the openings by so doing. Plenty of drone comb is placed in desirable colonies to rear the drones to make sure of having good ones.

Mr. Lincoln says that he can manipulate 50 colonies a day by the foregoing method. He uses eight frames in a ten-frame super, and extracts at the end of the flow.

Mr. William Vollmer, of Akron, N. Y., told of his varied experience in buying bees in combless packages from the South. In case of the one-pound package with queen, he thinks it is advisable to put the bees on empty combs with a frame of brood, if they are received early in May, in order to make them a remunerative proposition. With the two-pound package it is also advisable to give a frame of brood, but the combs are not quite so essential. The two-pound package generally makes sufficient honey the first season to pay for itself; and as far as honey is concerned, therefore, is a better investment. Of course, if increase only is desired the first season, the smaller package is better.

Mr. Vollmer prefers a roomy package and a good candy to ship well. Combs of honey are not satisfactory. They melt down and daub the bees, making them worthless.

Cheap queens are usually dear at any price. The bees are not so important, except they should be young. If blacks or hybrids they should be forced thru an excluder to get rid of the undesirable drones.

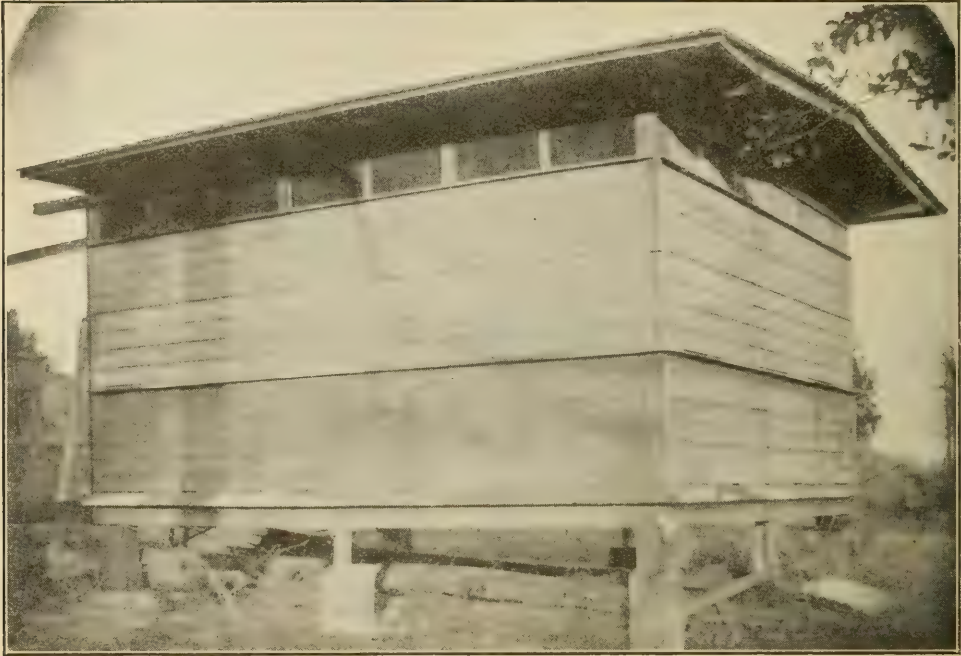
Some beekeepers make a practice of buying young swarms for increase. This is also a good plan if the stock is desirable; but if one takes into consideration the extra time and labor involved in getting one, two,

or more at a time, instead of having all come at once, as is the case when packages of bees are shipped in, there is not much difference, tho the young swarms are usually the cheaper.

Mr. John DeMuth, of Pembroke, N. Y., told of his experience with European foul brood. The beekeeper must first eliminate the black bees or the disease will do it for him. A good strain of Italians is a great help in holding it in check; but some strains are almost as susceptible as blacks. Caging queens for a period sometimes effects a cure. Killing old queens and giving young vigorous ones is another method. Where foul brood prevails it is hard to rear queens, so they had better be bought from some reliable breeder whose stock has shown good resistant qualities.

Mr. DeMuth does not think it necessary to melt up combs that have contained European foul brood. He merely puts them above an excluder over a strong colony to be cleaned up. This disease is like other diseases. It seems to diminish after being in a locality two or three years, and gradually wears itself down somewhat. Mr. DeMuth has visited a large number of beekeepers in the western end of the state, and they all report a small amount of disease, especially where it is in the locality. Most of them treat it by one of the foregoing methods, and consider it the same as a weed in the garden. Eradicate it this year and you may not have any next, or you may. With a little help it can be held in check so as not to be as serious as might otherwise be expected.

When selling honey at home to the neighbors Mr. Vollmer recommended asking the



C. L. Hill's house-apiary. Light and ventilation are provided by the 12-inch opening on three sides covered with screen. There are two tiers of hives, the entrances being painted in different colors.

full price. If one feels inclined to give away any, give it outright. In this way if any one asks the price of honey only one price is given, and the beekeeper will not

be accused of having two prices, a thing which will not do if one intends to do any amount of business.

Akron, N. Y.

MY HOUSE APIARY

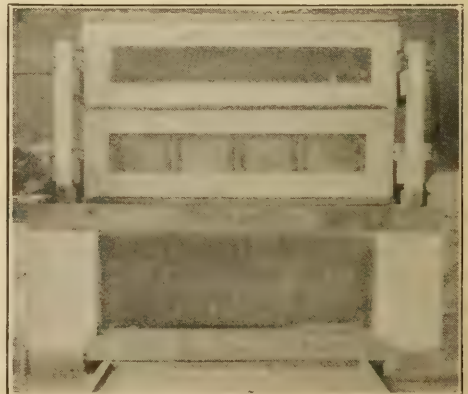
BY C. L. HILL

From my experience of the last three years with a house apiary I consider this plan of keeping bees far superior to the individual stands out of doors.

On three sides of my building, just under the eaves, is an opening 12 inches wide covered with rustless screen. The hives are located on the floor, and there is also another tier of hives three feet above the lower tier, all having entrances thru the wall. The entrances outside are painted different colors.

The hives are formed by partitioning off the space into compartments like bins long enough to take frames lengthwise. The "bins" are deep enough to hold eleven frames.

The floor boards may be withdrawn for cleaning. There is enough space between the upper and lower tiers of hives to permit



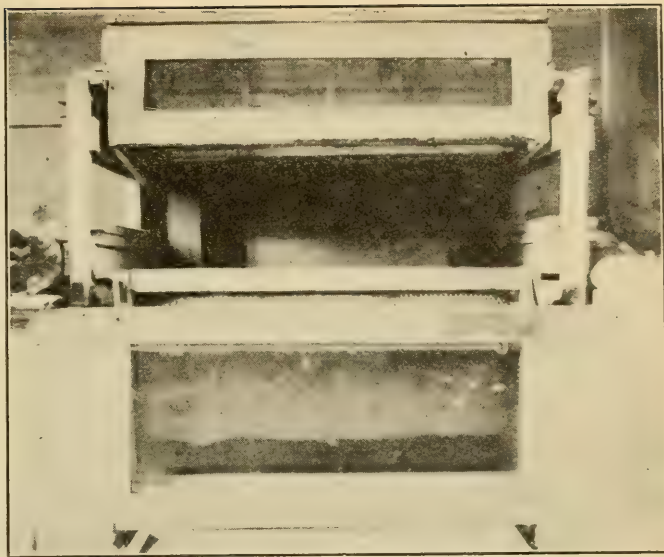
Two glass-fronted supers in position over the brood-chamber. In a house apiary supers may be made of thin material as there is no exposure to the weather.

two supers over the lower brood-chambers. I have it so arranged that the upper supers are held by supports so that the lower supers may be removed without disturbing the upper ones.

The colonies winter excellently with nothing over the hives except very thin covers and blankets to retain the heat. The combs are always dry, and there is never any mold nor dampness whatever.

Later on we expect to start a number of out-apiaries with these buildings which permit us to handle bees at any time, rain or shine.

May's Landing, N. J.



The supers are independently supported. The under one may be withdrawn if desired.

HOLLAND HONEY AND HONEY CROPS

BY J. H. J. HAMELBERG

The majority of our beekeepers still using the skep, it is not to be wondered that extractors are not very often found in this country. The combs, cut out of skeps, not being in frames, could be extracted only by improvising some device to hold them in position in the extractor. This would entail a considerable amount of labor, to say nothing of the time it would take to uncap these combs of all shapes and forms. Consequently our beekeepers use other ways to get the honey out of their combs; and the products obtained by these methods are distinguished by "leak" and "press" honey, the former being the honey which drains (leaks) from the combs while stored in some vessel, the latter being obtained by putting the combs under a press very similar to a wax-press. This press honey is, of course, much inferior to the drained honey, as it always contains pollen, and, unless the beekeeper has been very careful, the juice of brood and dead bees as well. But it is excellent for feeding purposes, and it also seems to answer very well for making cakes, as our bakers buy it readily. A good many beekeepers, however, sell their honey in bulk as chunk honey.

The comb honey and the extracted honey on our markets are furnished by our modern apiaries. It has been contended that there

are a few beekeepers in this country who import American or West Indian extracted honey by the barrel, selling it afterward for "pure inland;" but for the truth of this I cannot vouch. When looking over the shipping-lists of vessels having entered from American or West Indian ports, one often finds an item of so many barrels of honey, but no one ever seems to have taken the trouble to trace the destination of such imported honey, for which reason it would be unfair to charge our beekeepers with the above implied fraud.

It cannot be said that we are a honey-eating people, as, for instance, are the Swiss. As yet very little honey is consumed by the laboring and middle classes, it still being considered somewhat as a luxury for the table of the rich. But then, very little has been done until now to point out to the people the value of honey as a food.

Our extracted honey is put up in glass jars of $\frac{1}{4}$, $\frac{1}{2}$, or 1 kilogram, and of late fancy jars have also come in use, as, for instance, in the shape and color of a straw skep. The half-kilogram jars (1.1 lb.) are most popular, and are sold by retail for 30 to 40 cts. each.

Chunk honey is better appreciated by our honey-consumers than comb honey in sections; but a good many people prefer the



A location for an apiary chosen by C. L. Hill, of May's Lake, N. J. Bees here are in reach of the cranberry-bogs.

extracted honey for table use. Very likely our national feeling for cleanliness has something to do with these preferences. Chunk honey is mostly produced by our skep-keepers, and they can readily sell it to buyers in their neighborhood, once they have a good reputation for cleanliness and honesty. Our modern apiaries advertise their product, and fill the orders they get, but they don't peddle their honey. One may buy it at a grocery; but it does not appeal to our feelings to see sections, however beautifully filled, exposed to the dust and the flies before a grocer's windows.

As to our honey crops, they remain far below those obtained by some apiarists in the United States—for example, Dr. Miller. I have his very valuable work in which he describes his forty years' experience, and I have studied it rather closely. But there never has been any question about my obtaining the crop that this American veteran gets from even weak colonies or what he considers as such.

We have good seasons and bad ones, also more of the latter. But even in a very good season I would be very well satisfied if my bees gave me an average of 75 lbs. per colony, and, as to an average of 150 lbs. or more, I don't even dream of it.

Altho we have the linden, white clover, buckwheat, and some other good honey-plants, one does not see in this country acres and acres of them, as seems to be the case in the United States. On our poorer soils one may encounter patches of a few acres of buckwheat; but of the hundreds of acres of this grain on a stretch, by which, for instance, the late Mr. Alexander was surrounded, we cannot form an idea. Such stretches of land with only one honey-giving plant are to be found here only on the heaths; but then, heather honey is a rather ill-flavored and very dark-colored product which is disliked by many.

Alfalfa and sweet clovers are not cultivated in this country, and we thus miss two great honey sources. But still I think our bad seasons are not caused so much by the want of bee-pasture as by our changeable climate. When I read sometimes in GLEANINGS of complaints of beekeepers about bad crops on account of the temperature some nights going below 60 degrees, I wonder how these beekeepers would feel *here*, where the thermometer, even during our warmest summer months, seldom registers as high as 60 degrees at night; where night frosts kill the buckwheat bloom, and where the heather often does not secrete any nectar on ac-

count of the cold nights! And the long spells of rain we have but too often! rain for days on a stretch, washing all the nectar out of the flowers! One can fancy the state of mind of the beekeeper who the lindens around his apiary are in full bloom and his

bees have to remain at home on account of the pouring rain; when, morning after morning, his hope is frustrated on seeing the sun breaking thru the clouds! And such seasons are not the exception here. Soest, Holland.

TWO VARIETIES OF THE EUCALYPTUS

Eucalyptus Mellidora (Yellow Box Gum)

BY LESLIE BURR

The name *Mellidora* is from the Latin, and means "honey scented." The common name is yellow box gum. The trunks of these trees are often crooked and gnarled. The branches have a spreading or sprawling habit. In Australia the tree is said to grow to a height of 250 feet, and obtain a diameter of from six to eight feet. The outer bark is of a brownish-gray color, and is persistent. The inner bark is yellow. It is because of this yellow inner bark that the tree is called "yellow box." The branches are smooth. The leaves on the young trees are apt to be oval; but when the tree obtains a few years' growth the leaves are lance-shaped. There is very little difference in

the sides of the leaves, both sides being of a dull-green color.

The botanical name, *E. mellidora*, was given this particular eucalyptus by reason of the fragrance of the blossoms.

As to its habits, its period of bloom is during the winter and early spring, the period of bloom continuing over several months. The trees will do well near the coast, on low mountains, in hot valleys, and will also resist considerable frost. It is one of the most profuse bloomers, and probably yields a greater amount of honey than any of the other varieties. The flowers grow in compact clusters. The seed-pods are about $\frac{1}{4}$ inch in diameter, and are egg-shaped,



Leaves and blossoms of the yellow box gum, *Eucalyptus melliodora*.

with the small end of the egg cut away. The wood is very durable under ground, and is valuable for fence-posts. The tree makes a rapid growth, but is not as rapid a grower as the *E. globulus*, or blue gum, but the wood is more valuable.

EUCALYPTUS CORYNOCALYX, THE SUGAR GUM.

Taking all things into consideration, the *Eucalyptus corynocalyx*, commonly called the "sugar gum," will in the future probably be the most important to beekeepers of all the various species of eucalyptus. The tree in the matter of bark, leaves, and general appearance is similar in many respects to various other species; but it is in fact one of the easiest to identify. The average person who is at all familiar with eucalyptus should have no difficulty in identifying it.

The bark of the tree, after it has attained some size, is smooth, and continuously flakes off in patches. The main trunk is of a cream color, the patches where the bark has recently been shed being of a lighter color. The color of the bark of the very young twigs is reddish. The young leaves are nearly round or slightly oval, those of the mature tree being the usual lance shape, similar to those of the red or blue gum, the average length of the leaf being some five or

six inches. In the color of the leaves there is some variation in different trees. On some trees the foliage is quite light, generally, tho the leaves on the upper surface are a dark shiny green, the lower surface being dull and of a lighter green. There are a considerable number of these trees in Balboa Park, the 1400-acre city park of San Diego, Cal. The period of bloom lasts for several months, beginning about May 1. Some authorities state that the tree comes into bloom in the fall, but such is not the case in this locality, altho there is considerable bloom during the late summer and fall months.

The principal distinguishing feature of the sugar gum is the form of the buds and of the mature fruits, the unopened bud being club-shaped, from which it derives the name, "corynocalyx," meaning "club-shaped calyx." The cover which tips the end of the bud is the largest in diameter of any part of the bud and is very abruptly pointed, very much resembling the club which used to repose near the Giant Bugaboo Bill in the story-books of our childhood days. The buds grow in clusters, there being usually from eight to twelve buds in a cluster. On some trees, however, there may be double the foregoing numbers. The fruit

is urn-shaped, and the opening of the end is very small, the seed-valves being deeply enclosed. Quite often there are also longitudinal grooves on the outer surface.

In the matter of localities where it will grow, a few trees in southern California were injured by the heat on the well-remembered 17th day of September, 1913, when most of the thermometers in southern California were not long enough to register the temperature, and so broke in the attempt. The various authorities on the subject of eucalyptus, however, recommend it as being one of the species adapted to hot dry regions. The tree also seems to stand about as much frost as any of the eucalyptus family.

In the matter of growth, it is generally conceded to be but little behind the blue gum; and in some few instances it has outgrown that tree. In the last year or two considerable numbers of this gum have been planted, altho in years prior such was not the case.

As to usefulness, it makes a fair shade-tree and has been planted to a considerable

extent as an 'avenue shade-tree. When planted comparatively close, as in the case of timber culture, the trunks are very straight with but little taper. Various authors on the subject of eucalyptus agree that the timber is more useful than that of the blue gum, for the reason that the trunk is straighter and the wood has the added quality that it will not rot when placed in contact with the earth, so is useful for fence-posts, railroad-ties, etc.

As a honey-producer, in the amount of nectar secretion it is one of the best. It has white blossoms, and is quite a profuse bloomer. The honey is amber. Taking everything into consideration, this species is not only one of the most valuable to beekeepers, but also thoroly deserves that reputation for general purposes, and should be one of the most widely planted of trees thruout the Southwest. Every beekeeper, wherever eucalyptus will grow, should boost the sugar gum, for the benefit of himself and his neighbors.

San Diego, Cal.

THE VICTORIAN APIARISTS' ANNUAL CONFERENCE

BY E. B. MACPHERSON

The meeting was held in Melbourne at the Flinders Building. There were present bee-farmers from Great Britain and Denmark; also members from distant states of this great commonwealth, all of whom took a keen interest in the different papers which were read by live and practical beemen. Bee talk and good fellowship reigned supreme.

Mr. D. Morgan, the president, read a good paper on shifting bees to better fields. He finds that, the darker the bees are kept,

the better they will travel, and also recommends good strong factory-made hives for migratory beekeeping. He uses loose frames, and says he can put a small nail in each end of the frames before shifting the bees, and says he can put them in and draw the nails out as fast as he can pack bees with Hoffman frames. Mr. Morgan has shifted his apiaries many times.

The members brought samples of their own honey. Which was the best? Well, you know every one thinks his own honey



The Victorian (Australia) annual convention.

is the best; but next year there is to be a prize of ten shillings (given by Mr. Pender, of New South Wales) for the best one-pound pot of honey. Mr. S. George Rich is giving a prize of ten shillings to the one who gets the most new members during the year for the Victorian Apiarists' Association. As is well known, some large honey-producers are not in this association. If all "honey-grubbers" would link up with us we might be a power to reckon with. The photographs are some that I took at the Botanical Gardens in Melbourne, where we spent a very pleasant day at the close of the convention.



Snapped in the Melbourne Botanical Gardens.

Mr. F. R. Beuhne gave us proof that he is a bee expert. He answered all questions from the question-box in short order. He also had some very interesting specimens of pressed-gum leaves and blossoms.
Port Fairy, Vic., Aus.

MY OUTYARDS EXIST IN MEMORY ONLY

BY L. K. SMITH

Imagine, if you can, a straight lagoon, one and one-half miles wide and seventy long, and you have an idea of the Indian River on the east coast of Florida. Now locate your home apiary; put a dozen colo-

nies across this river in a neighbor's yard; another dozen $2\frac{1}{2}$ miles south; another dozen 2 miles north, a dozen 3 miles further on, and another 7 miles, and then try to care for the 7 colonies of a friend, and you have my situation.

Now for the ways and means to care for this string of small apiaries. I had a sail-boat, row-boat, wheelbarrow, extracting-tent, and a wife and daughter. Right here I must say that my wife was the bee-master, and chief conspirator, while I was master mechanic and sailing master, my daughter being an able assistant.

For some years we worked along this way; then it fell to my lot to do the work alone, and for a time I hammered at it faithfully. But at last came doubts of the advantages obtained by this out-apiary system, and today those out-apiaries are memories only—memories of the hives either over full of honey or full of moth—memories of postal cards received, which told of swarming, of finding covers partly off the hives, and finally of two colonies being stolen from one of these yards.

When I believed in swarm control I believed in the out-apiary, and was willing to do the work necessary. I had to load up my boats with extracting equipment, sail and pole to the landing nearest the outyard to be extracted, unload on the shore, wheel



Mr. Blackburn, of England, one of the speakers at the Victorian convention.

and carry the cans, tent, hive-bodies, tent-poles, and extractor, from 50 yards at one apiary to 250 at another. Then I would set up the outfit, get out the combs, extract the honey, and replace the empty combs. Sometimes a shower would mix up my plans a little, but more often it was the robbing. At times I would leave the extractor in the boat anchored some distance from shore, and bring the combs to the boat and extract without screens of any kind. This worked nicely until the robbers got a line on me, and then the shop had to close.

After a time I carried empty combs to these outyards, and brought home the full ones. This made heavier lifting to load and unload in getting the honey home, but it was much the best plan.

A motor finally took the place of the sail; and, while it had many points in its favor, it did not solve the problem, but served to convince me of the errors into which we had fallen years before regarding the out-apiary, the greatest of them all being in the enforced neglect of the bees at home while trying to care for those at an outyard.

To sum up, I will say that, when I start another outyard, I will take in a partner.

Grant, Fla.

[There are thousands of beekeepers who are able to manage out-apiaries successfully. We believe our correspondent does not mean to denounce the out-apiary in general, but to point out some of the disadvantages when there is a lack of the proper facilities. Many a man having been successful with one apiary meets with failure when he attempts the out-apiaries, frequently because of his lack of suitable equipment.

Fundamentally, a convenient location must be sought that will profitably support a good number of colonies—not too far



A sail-boat is too slow a means for transportation from one outyard to another.

away from other apiaries, for travel costs both time and money. There is no question but that the automobile is solving the out-apiary problem in instances too numerous to mention.—ED.]

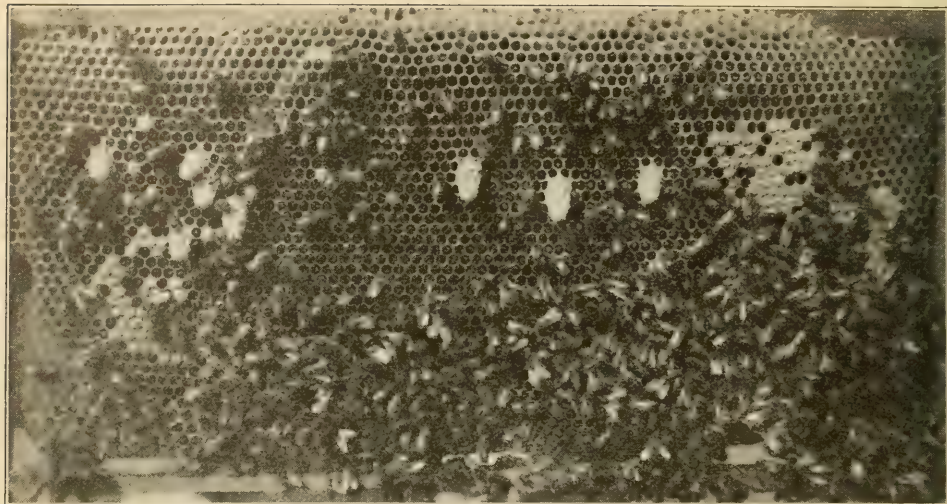
EARLY FEEDING ADVISABLE

BY W. C. MOLLETT

About every other autumn we usually have a light honey-flow or too much wet weather, so that it is necessary to feed more or less in order to carry the bees thru the winter. I usually feed during September or October unless I have no time to attend to it then, so that I may happen to be compelled to feed at different times thru the winter, as the weather will permit. I usually make the syrup about 2 to 1, or equal parts sugar and water, according to whether it is in the fall or winter, as it should be made thicker if the feeding is to be done late in the season.

I notice that it is very much better to feed early than late, as I have much better success when I feed in September than

when I put it off till later. At this time there is usually a light flow of nectar and plenty of pollen. This seems to make feeding more successful than later, as it does not excite the bees so much, and they can secure pollen, which seems to be very necessary for bees when fed sugar syrup. Last fall I did not get the bees fed up in time, and so was compelled to feed several times during the winter when the weather was warm enough. This did not give the bees time enough to get the syrup properly ripened or sealed, as the warm spells lasted only two or three days at a time. As a result either of this or of the weather they did not winter very well, and in spring were much weaker than usual. Further-



Comb of eggs and unsealed brood given to a queenless colony. Nine queen cells were built. One on the lower right-hand corner, not visible, hatched first. Photographed by R. L. Leland, Belding, Mich.

more, when fed at different times it seems as if bees consume much more than when the feeding is all done at once. I think that, if we are required to feed sugar, we should do all our feeding early, at the same time giving each colony enough to carry it thru the winter so that they can properly evaporate the dampness, and also get it mostly sealed before cold weather.

COLD-WEATHER UNITING.

Sometimes in the fall or early winter we find it is necessary to unite a few colonies that are too weak to go thru the winter. It is not a very difficult matter to unite bees late in the season; but in warm weather it is often impossible to unite them with any degree of success, especially if the honey-flow is over. A few times I have tried to unite two colonies into one and succeeded only in making two colonies into nothing, for, after the bees had fought and practically exterminated each other, the remaining bees were so weakened that they were worthless.

One autumn, as the result of a failure in the honey crop, I had several colonies that were too weak to winter successfully. I did not attempt to unite them till the weather became very cold—about January. Then, just as a severe cold snap was commencing, I went around and loosened the bottom-boards, so that the hives could be lifted without disturbing the bees when I was ready to unite them. The next morning I removed the covers as carefully as I could and lifted the colonies to be united on to the other colonies without making very much

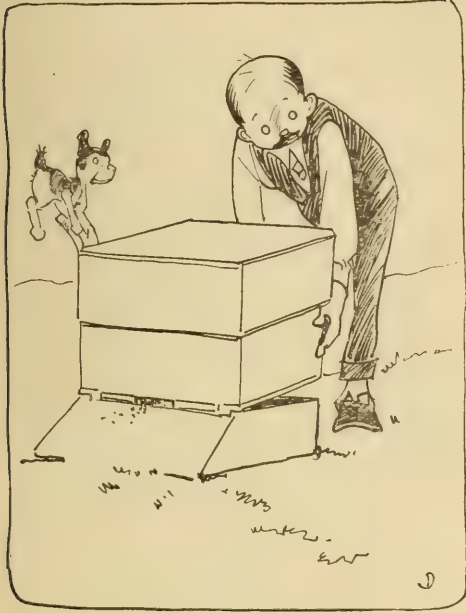
disturbance, and only a few bees flew out. As the weather was very cold the bees made no attempt to fight, and I did not place a newspaper between the two stories. By the time the weather warmed up a little they had become so much accustomed to the change that there was no trouble. Of course, in cold weather it is necessary to be as careful as possible, so that the bees do not fly out, as all the bees that escape will probably be lost, for, on account of the change of location, and the cold, the bees from the hive that is removed will be lost. Generally the bees will unite readily without any disturbance in cold weather, as they are so intent upon keeping up the heat of the colony that they do not take much notice of the change.

When two hives are placed together, the upper one is warmer than the lower, and the bees from the lower one will go up into the upper one and remain there most of the time till spring. In the spring one of the hives can be removed and used later for hiving a swarm.

It is better to unite colonies that have inferior queens or that lack vigor as honey-gatherers or that have any other defect, and thus get rid of undesirable stock. It would not be advisable to unite a colony having an inferior queen with one having a good queen, as it might happen that the bees would kill the better queen. This would not be so apt to happen if the one having the undesirable queen were weaker than the other one.

Stonecoal, W. Va.

Heads of Grain From Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

The bees that lay in their winter stores while the sun shines don't have to pay the butcher for his hand every time he weighs a soup-bone.

OCTOBER

BY GRACE ALLEN

When Autumn bows to Summer
(Who then steals quite away),
And spreads her gold and scarlet round
In such a royal way,
And chills the nights and mornings,
But sets the day afire
With gypsy flame and brilliant sun
And vagabond desire;

When smartweed takes the meadow,
And bitterweed's in bloom,
And aster opens on the hills—
Ah, then I leave my room,
And loiter in the beeyard
Where every hive's a-hum,
And vagrant thought, like flying bees,
Come and go and come.

Fall Feeding for Stimulation.

Fall feeding of bees is advisable especially in case of weak colonies. It pays to feed at any time after the honey-flow is over, for the reason that the queen will regulate her laying by the amount of stores coming in to the hive. This is especially true during the fall months when there is little honey to be gathered.

By feeding a little syrup every day or

several times a day one can keep the queen laying very late in the fall so there will be a large force of young bees with which to start in the winter.

This in turn means strong colonies in the spring. Many times colonies that appear to be very strong in the fall dwindle down during the winter so that they come out very weak in the spring. This is due to too many old bees in the hive, caused by the queen failing to continue her work late in the season.

The syrup that is stored with the late honey that is gathered improves the quality of the winter food, and this is excellent for brood-rearing in early spring.

It does not matter if the hive is full of honey; the queen will stop laying at any time in the fall when there is nothing coming in, whether it be early or late; but by feeding a very little at a time, and often, they will continue as long as the weather will permit the hatching of brood.

The hive should be kept as close and warm as possible; in fact, double-walled hives should be used, and packed as warm as for winter. Heat is more essential in September, October, and November than in December and January.

Bees will stand almost any kind of treatment except in early spring and late fall. These are the more vital periods at the time when young bees are most valuable.

Hartford, Ct.

Geo. T. Whitten.

[When feeding for stimulation it is always best to err on the safe side, and proceed with the idea of eliminating every possible chance for robbing. We advise giving half a pint of syrup very late in the afternoon only, so that by morning the excitement caused by the feed will have subsided. If the syrup were given several times a day, especially to weak colonies, robbing might be started. The latter part of October is usually too late for stimulative feeding except in the south-central and southern locations.—Ed.]

Another Successful User of the Honey Method of Introducing.

Since receiving the Sept. 15th issue of *Gleanings* I have been searching my files of bee literature of all sorts for items relating to queen-introducing. As I have not completed my research I am not ready to give specifically any data, but I wish to say the practice of sprinkling the bees and daubing the queen for introducing is decidedly not new as a whole nor in detail.

Just why I or any other beekeeper who has known of it right along has not given it thought or trial until now is a puzzle to me.

I used the method last season (1915) with perfect satisfaction and no failure, and this season more with the same success. Furthermore, I talked the "sousing" method, as I

like to describe it. before our summer meetings at Mount Holly and Elizabeth, and I have within the week received the word from the largest beekeeper in the state (about 400 colonies), "I have tried the 'souse' method—success every time."

My way of doing it is to use dilute honey, a good teaspoonful to a teacupful of water, which I souse over and between the frames from a flour or powdered-sugar dredger, and distribute it well. Use more or less according to the strength of the colony; anyhow, don't be stingy with the souse; give the queen a souse (so she looks like a wet hen), and run her down between the wettest frames.

This dilute honey is less likely to result in injury to the queen; is more quickly cleaned up, and less likely to start robbing; takes far less honey, and can be handled more rapidly; if any of it gets on the hands or clothes there is less of a mess, and it answers every purpose.

I will not take space now to discuss the ethics of this method; but I must say it looks like the simplest, least injurious, most nearly natural, quickest, and most logical method which can be devised. I will venture the prediction that, by the end of five years, everybody will be using the "sousing method," thereby saving hundreds of dollars and oceans of time.

Hoboken, N. J.

C. D. Cheney.

Fooled 'Em, Sure.

One day in August I was surprised to find a case of genuine robbing in full swing. The weather being very warm, and white clover still plentiful, and the bees gathering nectar from it, I little dreamed of any robbing likely to occur, so had left all entrances wide open—a circumstance that gave the robbers their opportunity.

I at once smoked away the bees and closed the entrance, then narrowed down the entrances to the near-by hives to about an inch opening. Having a supply of half-cured hay near by, I brought a few forkfuls near the hive. After about half an hour I again smoked away the cloud of robbers seeking to enter, and opened up the hive to a very torrent of well-filled robbers. The most of the thieves having made their exit I hastily closed the entrance again, leaving an opening sufficient for only one bee to pass at a time, and quickly covered the hive and accumulating bees deeply with the hay at hand. Near nightfall I cleared away the hay and opened the hive, allowing the marauders to go home. After dark I removed the hives to a dark corner in a cool cellar and covered it up, but with the entrance open.

I immediately put a dummy hive in its place on the stand, but with empty combs and a feeder in the bottom in which I put about a quart of very thin sugar syrup. The next morning I was pleased to see the robbers returning to the feast and crowding the narrow entrance of the dummy. They

were kept busy several hours before the syrup supply was exhausted, when, finding no more sweets around, they very quietly took their departure, thinking, no doubt, that they had effected a complete job.

Two days later I took the bees from the cellar and replaced them on the stand, where they were not again molested, and are doing as well as ever, apparently not any the worse for their experience.

Manawa, Wis.

E. E. Colien.

A Connecticut Report.

This is not a good location for the beekeeper, not being a natural clover location, and little interest is taken in trying to raise it. However, there has never been a time in the last twenty years when bees have had to be fed to keep them alive from May to October. On the other hand, there has not been a heavy honey-flow in the same period. From May till early July honey comes in a slow flow which booms brood-rearing and swarming; but with no heavy flow to check brood-rearing the problem becomes a big one if a surplus is to be secured. I had several queens laying in the outside combs of ten-frame hives May 5, 1914.

In trying to avoid increase and get the much-desired surplus I built a few ten-frame Jumbo hives, chaff packed them as the regular chaff hive, but the big hive sent out a swarm as early as any. A modification of the Aspinwall hive was tried, with slatted dummies and ten frames in two stories. This gave the same result as the Jumbo. Cutting queen-cells has been practiced, but I am not delighted to see a big swarm pile out of a colony which had the cells cut only a day or two previous.

I find that good queens can be reared here up to July 15 without feeding or trouble from robbers, but after that it is not very pleasant. I have forty colonies, which is enough for this location. My highest average yield of comb honey per colony has not exceeded fifteen pounds. The fall flow is very light, usually not being sufficient for wintering.

Delos O. Hart.

Barkhamsted, Ct., Feb. 29.

Smoker Chips.

Dry locust bark makes the best of smoker fuel.

If you do not want your smoker to go out while you are at lunch, fill it, get it going, then place it in a box twice the height of the smoker and leave the top of the box open.

A 60d spike nail and a tin tobacco-box for matches will be found convenient where you fill and light your smoker.

A piece of old enamel cloth stuffed in the top of your smoker will prevent its burning the fuel too fast, and will increase the volume of your smoke.

High noon on a hot day is the best time to examine a cross colony of bees.

Morgan, Ky.

J. E. Jordan.

Pollen Stored above an Excluder.

My bees persist in putting pollen in the shallow extracting-frames, not in solid patches, but in scattering cells enough to spoil the appearance. The hives are ten-frame, with queen-excluder under the supers. What is the cause and cure?

Mt. Vernon, Ill.

T. E. Brown.

Dr. Miller replies:

It is unusual for pollen to be stored above an excluder unless it be that the brood-combs are shallower than those in Langstroth frames, said frames being $9\frac{1}{8}$ inches deep. In any case I don't know of any remedy unless it be to have deeper frames below. There is just a possibility that you have a strain of bees unusually given to storing pollen in the surplus apartment, in which case introducing a queen of different stock would be indicated.

I don't see any great harm, however, in having pollen in extracting-combs. You speak of its spoiling the appearance; but those who buy extracted honey never see the combs from which it is extracted, and so care nothing for their appearance.

Do Bees Work the Second Crop of Red Clover?

In this locality I have never seen a honey-bee on the second crop of red clover; but I have never failed to see them on the first crop. The reason is this: The second crop yields nothing but pollen. In this locality the first crop is loaded with nectar; and since I have had Italian bees, the first crop has more seed than the second. This would be a good location for bees if the second crop of red clover would yield nectar, as the second crop is much shorter, and the bees could reach the nectar much easier. Again, the second crop blooms at a time when the bees have little to do.

Velpen, Ind.

W. T. Davidson.

[The reports from most localities indicate more bees on the second crop.—Ed.]

Bill-board Advertising Sold the Crop at Home.

About the time I began to take off my honey I went down town and bought some boards and painted them white. I had a man letter an advertisement on three large bill-boards that I made with my white lumber.

In the meantime I had told quite a good many that I had some nice honey, both comb and extracted, the price to be 15 cts. for the comb and 10 for the extracted in 10-lb. tin pails. I took a little to one of the editors of our village papers and he gave me quite a nice send-off about my honey.

The result was, the first thing I knew my extracted was all sold, and nearly all the comb honey. My crop was 2800 lbs. of extracted and 800 of comb honey. I could have sold as much more extracted if I had had it. Nearly all the honey was sold right

at the house. I had to deliver only a very little of it.

Aitkin, Minn.

Wm. Craig.

75 Per Cent Purely Mated.

I have bought quite a lot of untested queens from various breeders thruout the United States, and also in Italy. I had a few lots some years ago that ran pretty dark, nearly or quite fifty per cent, and the most that I have bought would run from 75 to 100 per cent pure so far as mating was concerned.

I have occasionally had a few old queens tucked in with dozen lots, and once, some years ago, I received a virgin when I sent for and paid for a warranted queen. This was from one of the good breeders too.

Union Center, Wis.

Elias Fox.

Carbolic Acid for the Colony that Does the Robbing.

The first of August I passed near my apiary one morning and noticed the bees were very cross. I went out to see what was the trouble, and they were robbing from several colonies. I soon found the colony which was doing the robbing, and I was at a loss what to do, but happened to think of my bottle of carbolic acid. I got that and smeared the entrance of the colony which was doing the robbing. In about two hours I used the carbolic acid again, and by mid day everything was quiet as usual, and has been ever since.

Stockton, Va.

Francis W. Gravely.

Bees that Worked for Nothing and More than Paid for Themselves.

I put a swarm in a home-made hive upstairs in my winter home, Auburndale, Fla., on Feb. 25, last year, and by April 1 the surplus part at the top of the hive, containing 56 1-lb. sections, was completely filled with the finest honey. In February of this year I raised the lid to see what was there, and, to my surprise, it was again completely filled with palmetto honey, making 112 lbs. in less than one year. What do you think of that?

Auburndale, Fla.

I. G. Tolerton.

B's

A little girl who is but six years of age was asked to make a sentence, each word of which began with B. The outcome of it was this:

Big bees buzz.

Bright bees bite.

Beautiful bees bring bank bills.

Big bees bring bother.

Bumble bees bother bears.

Both bother boys.

Bees bear bee bread.

Bee bread brings bees.

Ethel M. Comyn Chesig.

Okanagan Center, B. C.

GLEANINGS FROM QUESTIONINGS

F. A. C., Nevada.—What causes brood to be wrong end up in cells?

A. We cannot explain to you why pupæ sometimes get in a cell wrong side up. We can only surmise that nature has made a mistake in some way. Of course the young bee dies, because it cannot get out.

F. P. H., Los Angeles, Cal.—In rearing queens how many mated queens can one get per month from each mating hive or nucleus? What per cent of virgins are lost in mating?

A. We get an average of two laying queens per month from each nucleus. Eighty per cent successful mating for the season is a good average.

W. E. K., Missouri.—Would it be all right to put net weight of sections on top of cartons instead of on the sections.

A. Yes, it is entirely permissible; in fact, it is the only thing to do when sections are put in cartons. The actual net weight of the honey inside of the section must go somewhere on the outside of the package. Where the sections are not put in cartons, then of course the net weight must show on the section itself.

J. A. C., Wisconsin.—My queens stopped laying in August. What was the trouble?

A. A queen when one or two years old will often and generally let up on egg-laying thru August and into September, and will not begin again to any extent until the fall flow, or when colonies are given stimulative feeding. On the other hand, queens three weeks or three months old will lay right thru the season, and their colonies must be supplied with stores to take care of the brood to prevent winter starvation.

E. J. E., Transfer, Pa.—Should supers be left on the hive during the winter in order to provide winter stores?

A. Ordinarily a super should not be left on the hive during the winter. There are some exceptions to this rule, as for instance in the case of exceptionally strong colonies, or colonies that are short of stores when it is too late to feed. In such case a super may be left on containing honey. The better plan, however, is to make sure that there is plenty of honey in the brood-combs so that the super would not be needed unless for holding packing material.

M. C. W., Bethel, Ct.—How can I disinfect a honey-extractor which has been used to extract honey from combs that contained foul brood?

A. If you have access to steam it would be a good plan to fill your extractor can with water and then introduce steam until the water boils. Let it boil for a few minutes and then it will be perfectly safe to use. If you have no steam you will have to rely

on using a large quantity of boiling water, heating several wash-boilers of water at a time, so that the can will be filled with scalding water.

F. A. C., Goleonda, Nev.—I wish to winter my bees on candy. What is the best recipe for making it?

A. We do not advise feeding candy except when the discovery that the bees are short of stores is made too late for feeding sugar syrup. We regard candy as a substitute to be relied upon in case syrup feeding is impossible, as in cold weather, for instance. If there is a chance to feed syrup, do so by all means, rather than to rely upon candy.

It is not too late to feed syrup. We recommend a syrup made by mixing two parts of sugar to one of water and feed until each colony has at least twenty-five pounds of sealed stores—stronger colonies thirty to thirty-five. The candy is an unnatural winter food, but it can be relied upon in emergencies.

C. G. M., Ohio.—I am a beginner with five colonies. Will you tell me how to winter them?

A. Assuming that the bees are in single-walled hives your first undertaking will be to make sure that each colony has enough stores. An average-sized colony in a ten-frame hive ought to have not less than twenty-five pounds of sealed stores, and thirty is safer. If there is not enough in the combs to make up about this weight, feed thick sugar syrup not later than October 20, made by mixing two parts of sugar and one of water.

The next important requisite is a sheltered location. A spot sheltered by buildings, trees, or artificial windbreaks should always be selected. Such a place is better in summer as well as in winter.

In your locality additional protection is necessary if you winter out of doors. Contract the entrances down to a space of $\frac{1}{4}$ by 3 to 5 inches, and be sure that each hive is well protected. If you like you can place empty boxes over each hive and fill in all around with leaves or shavings, or other good packing material, covering up everything on top with a cover that will not leak. Of course the entrance must be left open all the time. If you prefer you can pack the five hives in a row, or place three in one group and two in another.

If you have a cellar where the temperature does not vary much below 40 nor above 50, where the ventilation is good, you could winter in the cellar without any packing. Less stores would be consumed also, altho you would have the labor of carrying them in and setting them out again. Ideal bee-cellars are rather hard to find. Too much dampness or cold air makes trouble every time.

A. I. Root

OUR HOMES

Editor

Except a man be born again he cannot see the kingdom of God.—JOHN 3:3.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

During our pastor's recent vacation there was one Sunday when there were no services in our Congregational church; but he enjoined us, each and every one, to take the opportunity to attend the neighboring churches. Said he, "Do not any of you stay at home just because there are no services in our own church." I accordingly went to the Baptist church. On this occasion the leader of the Bible class had occasion to remark that the Jews were Jews by birth. They prided themselves on the fact of their being sons of Abraham, and seemed to claim there was no other way of belonging to God's elect than by birth. Well, our leader suggested right here that the new birth that is open to each and every child of humanity opens the way to every sinner, no matter what his past life may have been.

If I am correct about it, there has been a great deal of difficulty in comprehending or explaining this matter of the new birth. Even Nicodemus, a "master of Israel," expressed a difficulty in comprehending it away back in oriental times.

Well, my purpose in this Home paper is to try to make it plain to you what this new birth means, and how it is brought about. The story I am going to quote comes from Frances E. Willard. And, by way of introduction to you as to who Miss Willard was, I clip the following from the *Appeal to Reason*:

Frances E. Willard was recognized as one of the greatest women this country has produced. Her entire lifetime was spent in the advocacy of reforms, particularly temperance. The state of New York has honored her memory by putting a statue of her in Statuary Hall at the United States capitol in Washington. Miss Willard's statue is the first one of a woman found in that famous hall.

Now, friends, here is the tract that I have read over and over, and I hope it may appeal to you as it has done to me every time I have read it:

WHITE SHOES AND WHITE DRESS.

Miss Willard always enjoyed telling this true experience of one of the leaders of the Temperance Crusade:

One morning during the crusade a drunkard's wife came to my door. She carried in her arms a baby six weeks old. Her pale, pinched face was sad to see, and she told me this sorrowful story: "My husband is drinking himself to death; he is lost to all human feeling; our rent is unpaid, and we are liable to be put out into the street; and there is no food in the house for me and the children. He has a good trade, but his earnings all go into the saloon on the corner near us; he is becom-

ing more and more brutal and abusive. We seem to be on the verge of ruin. How can I, feeble as I am, with a babe in my arms, earn bread for myself and children?"

Quick as thought the question came to me, and I asked it: "Why not have that husband of yours converted?"

But she answered hopelessly, "Oh! there's no hope of such a thing. He cares for nothing but strong drink."

"I'll come and see him this afternoon," said I.

"He'll insult you," she replied.

"No matter," said I. "My Savior was insulted, and the servant is not above his Lord."

That very afternoon I called at the little tenement house. The husband was at work at his trade in a back room, and his little girl was sent to tell him that a lady wished to see him. The child, however, soon returned with the message, "My father says he won't see any one."

But I sent him a message proving that I was indeed in earnest. I said, "Go back and tell your father that a lady wishes to see him on very important business, and she must see him, even if she has to stay till after supper."

I knew very well that there was nothing in the house to eat. A moment afterward a poor, bloated, besotted wreck of a man stood before me.

"What do you want?" he demanded, as he came shuffling into the room.

"Please be seated, and look at this paper," I answered, pointing to a vacant chair at the end of the table where I was sitting and handing a printed pledge to him.

He read it slowly, and then, throwing it down upon the table, broke out violently:

"Do you think I'm a fool? I drink when I please, and let it alone when I please. I'm not going to sign away my personal liberty."

"Do you think you can stop drinking?"

"Yes, I could if I wanted to."

"On the contrary, I think you're a slave to the rum-shop down on the corner."

"No, I ain't any such thing."

"I think, too, that you love the saloon-keeper's daughter better than you do your own little girl."

"No, I don't, either."

"Well, let us see about that. When I passed the saloon-keeper's house, I saw his little girl coming down the steps, and she had on white shoes, and a white dress, and a blue sash. Your money helped to buy them. I come here, and your little girl, more beautiful than she, has on a faded, ragged dress, and her feet are bare."

"That's so, madam."

"And you love the saloon-keeper's wife better than you love your own wife."

"Never, no, never!"

"When I passed the saloon-keeper's house I saw his wife come out with a little girl, and she was dressed in silk and laces, and a carriage waited for her. Your money helped to buy all the silks and laces, and the horses and the carriage. I come here and find your wife in a faded calico gown, doing her own work; if she goes anywhere she must walk."

"You speak the truth, madam."

"You love the saloon-keeper better than you love yourself. You say you can keep from drinking if you choose; but you helped the saloon-keeper to build himself a fine brick house, and you live in this poor tumble-down old house yourself."

"I never saw it in that light before." Then, holding out his hand, that shook like an aspen leaf, he continued, "You speak the truth, madam—I am a slave. Do you see that hand? I've got a piece

of work to finish, and I must have a mug of beer to steady my nerves, or I cannot do it; but tomorrow, if you'll call, I'll sign the pledge."

"That's a temptation of the devil. I do not ask you to sign the pledge; you are a slave, and can't help it; but I do want to tell you this. There is one who can break your chains and set you free."

"I want to be free."

"Well, Christ can set you free, if you'll submit to him, and let him break the chains of sin and appetite that bind you."

"It's been many a long year since I prayed."

"No matter; the sooner you begin, the better for you." He threw himself at once upon his knees, and while I prayed I heard him sobbing out the cry of his soul to God. His wife knelt beside me, and followed me in earnest prayer. The words were simple and broken with sobs, but somehow they went straight up from her heart to God, and the poor man began to cry in earnest for mercy.

"O God! break these chains that are burning into my soul! Pity me, and pity my wife and children, and break the chains that are dragging me down to hell! O God! Be merciful to me a sinner." And thus out of the depths he cried to God, and he heard him and had compassion upon him, and broke every chain and lifted every burden, and he arose a free, redeemed man.

When he arose from his knees, he said: "Now I will sign the pledge, and keep it."

And he did. A family altar was established. The comforts of life were soon secured—for he had a good trade—and two weeks after this scene his little girl came into my husband's Sunday-school with white shoes, white dress, and blue sash on, as a token that her father's money no longer went into the saloon-keeper's till.

But what struck me most of all was, that it took less than two hours of my time thus to be an ambassador for Christ in declaring the terms of heaven's great treaty whereby a soul was saved from death, a multitude of sins were covered, and a home restored to purity and peace.

The above tracts are furnished at five cents per

dozen; 30 cents per 100, postpaid. M. E. MUNSON, publisher, 77 Bible House, New York.

Some of you may urge that the above is only fiction; but the first paragraph tells us that it is a true experience; and it is very much such an experience as I have had again and again, as you may recognize if you recall what I have written in these Home papers. This intemperate man was a sample of those that the world considers beyond help. It required quite a little faith on the part of the good Christian worker to insist on seeing him when he refused to be seen. Then it required a considerable amount of tact as well as faith to *get hold* of such a man. The white shoes and the white dress belonging to the saloon-keeper's daughter touched the vulnerable spot in the heart of the poor besotted inebriate. Then the suggestion in regard to the saloon-keeper's *wife* drove another nail, until the poor slave of drink got to the point where he could say, "O God! have mercy on me, a sinner."

Now for the moral of this tract, and may God grant that it may be scattered far and wide. There are such poor helpless slaves of drink in almost every community; and you too, my friend, whether man or woman, can do just such work if you will. Get down on your knees first, and ask God to give you faith and courage, and then turn in and help in this glorious work of "rescuing the perishing."

TEMPERANCE

Visiting the iniquity of the fathers upon the children unto the third and fourth generation.—Ex. 20:5.

Ever since infantile paralysis commenced its terrible work I have been impressed with the idea that sooner or later we shall find the trouble comes, perhaps indirectly, from the use of intoxicants; and I have feared, too, that some of our great cities might be reluctant to admit or have it come out in print that our open saloons are more or less responsible for this terrible malady. It has already been remarked that it is confined mostly to our great cities, and to those portions of these cities where there is a congestion of population and a lack of sanitary measures; and I wish somebody could tell me whether its ravages are not confined mostly to our wet cities. Has infantile paralysis started or made any headway in our dry cities and towns? We have had just one case here in Medina County, and it occurred right close by the only spot where

there are two saloons put in by the famous (or infamous) home rule a year ago. Below is a clipping from the *Cleveland Leader*, which, while it does not hit exactly where I expected, contains a suggestion that may well be pondered. The Bible tells us that when Pharaoh said, "Who is the Lord that I should obey him?" when nothing else would subdue that proud monarch the Almighty struck a blow at the first-born in all the land; and is it not possible that the loving Father has seen fit to strike a blow at the babies when nothing else would rouse up and bring to their senses the fathers and mothers? Now read the clipping and look out all around you, as far as you are able, and see if nicotine is not at the bottom of the whole matter.

"TOBACCO PLAGUE CAUSE;" INFANTILE DISEASE IS FORM OF NICOTINE POISONING, CLAIM.

NEW YORK, Sept. 29.—If you are a smoker you probably have heard of Dr. Pease, president of the Non-smokers' League, and arch enemy of the cigarette. Well, then, Dr. Pease and his favorite

author, Miss Annette Hazelton, have a little news for you.

Infantile paralysis, says Dr. Pease, is simply a form of tobacco poisoning. Infants in arms become infected thru their tobacco-using parents, he has informed the health department.

Our poultry friends will remember that, a short time ago, a sort of paralysis started among the poultry; and when the searchlight of science was turned on the matter they declared the whole trouble was because the chickens had gotten hold of some dead carcass; and poultrymen everywhere are exhorted to see that everything of this sort is either burned up or buried so deep that no enterprising scratchers can ever resurrect it. Is it possible we have fathers and mothers in this land of ours who would keep on using tobacco when it might kill or cripple for life the baby in the cradle, or, worse still, the *unborn* babies?

"THOU CHILD OF THE DEVIL."

The above expression that I used in these pages recently it seems has called forth the following from friend Doolittle. Read it very carefully and see if you don't think he is about right:

THE DEVIL DRESSED IN WHITE.

Bro. Root:—I note what you have to say in the Temperance department of GLEANINGS for September 1, p. 817, under the quotation of scripture, "Thou child of the devil; thou enemy of all righteousness; wilt thou not cease to pervert the right ways of the Lord?" You think that Paul, if he were alive upon the earth now, would say this of the liquor people and their business, even tho it sounds a little rough. And in this I agree with you exactly, and I have so said many times in print and otherwise. But allow me to ask, "Who are the liquor people?" Sixty years ago, when I was a boy, the man who made a business of selling liquor was called a "black devil," and was so considered, as is the liquor traffic of today by many of the people of the United States; but in 1862 the government at Washington took this devil in as partner, clothed him up in white, and gave him next to the highest place in the affairs of the nation. By that act Congress never gave such a gift to anybody else—not even in its land grants to the railroads—as it gave to the liquor interests, when, in 1862, it passed the internal-revenue bill. The modern liquor-traffic is the product of that bill. It created organization, it established monopoly, it gave an air of respectability to what had before been disreputable in the eyes of all decent people. It enabled the liquor maker and seller to shake his dirty fist in the face of the American government and say: "You cannot do without me!" and, while robbing the American people of billions of dollars annually, to trample on their necks with the insulting assertion, "I pay your public expenses;" and, strange to say, this devil is still wearing his white apparel, because 498 sovereign citizens of these United States, out of every 500, say at every national election, "We love to have it so," by casting their ballots with political parties who are pledged to the continuance of this very same state of affairs. Every thinking man knows that the party in power at Washington is the government; and every voting citizen of these United States should know that, when he gives his ballot for the election of *pro-license* parties, he is voting for the

continuance of this "devilish" state of affairs for another four years, to the very utmost borders of our fair land. The man who wants the liquor traffic, this "child of the devil" (according to the apostle Paul, A. I. Root, and Doolittle), to go right on destroying "50,000,000 children and young people under 25 years of age" (as given on page 817 of GLEANINGS), the value of each of which is "\$8000," or "\$400,000,000,000" for the whole, can vote the Republican ticket or the Democratic ticket or the Socialist ticket; whichever of these he votes, his ballot will say to the gin-miller, the brewer, the distiller, the saloon-keeper, "Go right on destroying the boys and girls of the nation." But the citizen who wants to make his vote say that he wants the liquor-traffic to stop robbing the people, to stop disturbing our nation's life, to stop killing men and women and children, will have to vote the Prohibition ticket to have his ballot say that. It is useless to attempt to stop the sale until we stop the manufacture. And before we can do that, we have got to *break the partnership* of the national government at Washington with the traffic. And before we can do that we have got to have a party that isn't taking the lion's share of the profits and taxing and licensing it. We have got to go to Washington and adopt "one standard of morals" on the liquor question, the same as we did on the slavery question and the Louisiana lottery question.

Borodino, N. Y., Sept. 6. G. M. DOOLITTLE.

I think I can give a hearty amen to the above unless it is where it includes the Socialist ticket with the Republican and Democratic tickets. Quite a few Socialists have written me lately to the effect that socialism was "out and out" for prohibition. I have not seen the Socialist platform: but if that platform gives any more encouragement than does the Democratic and Republican, I have not been informed.

RAISING REVENUE FOR OUR GREAT CITIES BY TAXING THE SALOON-KEEPERS.

There is much discussion going on just now as to how it came about, and where the trouble is, that so many of our great cities are not only short of funds but are threatened with bankruptcy. There have been all sorts of discussion in regard to the cause; but yet few periodicals, unless we except temperance papers, come right out and admit that liquor revenue costs in the end *ever so much more* than it comes to. Below is a clipping from the *New Republic*:

OHIO'S BIG BOOZE BILL

COLUMBUS, Sept. 23.—At the present time there are 6000 saloons in Ohio, each of which pays yearly license fees of \$1000. In spite of this enormous income from wet sources, the city of Akron is bankrupt, while Toledo, Columbus, Cleveland, Cincinnati, and other large wet cities, are in serious financial straits and are practicing rigid economy. The saloon revenue is insufficient to pay the saloon cost. It is estimated that the enormous sum of \$110,000,000 is wasted annually in Ohio alone for liquor.

Of course, the above is from a temperance periodical; but here is another one, clipped from the *Youngstown Telegram*, that does

not pose, so far as I can learn, as a temperance publication:

LIQUOR AND TAXES.

While the local Chamber of Commerce is discussing the sad financial condition of the larger Ohio municipalities, and recommending concerted action toward obtaining relief, it might inquire into the ancient claim that it is the revenue from the liquor-traffic that keeps cities solvent. It would be an interesting inquiry just now when 6200 licenses are to be distributed in Ohio among 7000 applicants.

If the saloon makes lower tax rates, and breeds prosperity, then Cleveland, Youngstown, Akron, and Toledo should have comfortable municipal bank balances, for their license quotas are filled up. Columbus, Cincinnati, and Canton should be almost as prosperous, for their saloons approach in number the limit allowed by law. Instead they are harassed with debts. Topeka, Des Moines, Denver, Portland, Seattle, Spokane, Birmingham, Atlanta, Memphis, Nashville, Wheeling, Charleston, Richmond, and Oklahoma City are not crying bankruptcy. Yet they derive no revenue from the liquor-traffic. They range in population from 50,000 to 300,000, and they have not the wealth of Ohio cities.

In view of the above, is it not about time that our city fathers should begin to "sit up and take notice"?

THE LARGEST DRY CITY IN THE WORLD.

The clipping below comes from the *New Republic*:

TORONTO, LARGEST DRY CITY; CANADIAN CITY WITH FOUR HUNDRED THOUSAND BECOMES WORLD'S LARGEST DRY CITY.

TORONTO, Sept. 16.—Today this city enters the dry column under the provincial act, and becomes the largest dry city in the world. This act, which puts the entire province of Ontario dry, cannot be contested for at least three years.

The provincial legislature in passing the act first voted absolute prohibition, and then asked the people of the province to ratify the vote. This popular vote will not be taken until after the war, however.

I am not sure the above is correct in saying that Toronto is the largest dry city in the world; but if it is *not* true we shall be "gladder yet." Below is something further, from the *American Issue*. Is it not worth a careful and *prayerful* consideration?

HOW IS THIS FOR A RECORD?

The city of Toronto, Canada, together with the entire province of Ontario, became dry Saturday, September 16. On the last day saloons were open, there was the usual drunken orgy attending the final closing of the liquor-joints. The following Monday morning there were 142 drunks in police court. Tuesday morning there were six such cases, and on Wednesday there was not a drunk before the court. That is some record for a city of more than 400,000 population, the largest prohibition city in America.

WHY CALIFORNIA FAILED A YEAR AGO.

There were at the last election for governor 250,000 voters who did not vote on the question of wet or dry, and 80,000 who *never voted at all*—a total of 330,000 voters that never voted yes or no, and you can rest assured the *wets* were all out. We were beaten 160,000. We are organizing to see that every one votes, so you see there are 330,000 votes to be counted one way or another.

There are only 2100 saloons in San Francisco Co. I have been in business for several years in serving the public, and I can vouch for all of the above. May the good Lord bless you in the good work you are doing.

Modesto, Cal.

F. F. TURNER.

Are there not other states, where *thou-sands*, "never voted at all?"

FLORIDA AND ITS PRESENT PROGRESS.

I have been for some time hungering and thirsting for some good news from Florida. The following is clipped from the *New Republic*:

FLORIDA'S LEGISLATURE IS DRY.

Last year the submission of the prohibition amendment was defeated in the legislature of Florida by one vote. Now Mr. Pendleton, Superintendent of the Florida Anti-saloon League, announces that 24 of the 32 members of the State Senate and 60 of the 75 members of the House have pledged themselves to vote for a resolution submitting the question of a state-wide prohibition amendment to the voters in the 1916 general election.

PROHIBITION SENTIMENT GROWS IN FLORIDA.

By a vote of 3 to 1 the important county of Brevard has voted for prohibition.—*American Issue*.

"STRAWS SHOW WHICH WAY THE WIND BLOWS."

We clip the following from the *Weekly Bulletin* of the Methodist Temperance Board. Have they not got it about right?

THE AIR IS FULL OF STRAWS, AND THEY ARE ALL THE SAME COLOR.

The rousing verdict of the voters of Maine in favor of the prohibition law, the sweeping victories of the "drys" in the primaries of Montana, South Carolina, and other states, simply marked a continuing tendency which has been evident for several years.

In Kansas all political parties in convention this year declared for prohibition. In Iowa the Republican and Democratic parties boarded the water-wagon. In Colorado the Republican and Democratic parties endorsed the present dry law and declared against allowing brewers to make beer and sell it in unbroken packages. In West Virginia both Republicans and Democrats in convention put an O. K. on state-wide prohibition and declared for strict enforcement of it. In New Mexico, a wet state, the Republican party in state convention declared in favor of submitting a prohibition law to a vote of the people thru the legislature, and it is practically certain that the Democratic party will take similar action. The Republican convention of Utah nominated a dry candidate for Governor, defeating Governor Spry, who vetoed the prohibition act passed by the last legislature. The state administrations of Washington and Oregon are in favor of prohibition and a strict enforcement of it.

Here is something else from the same sheet:

WHISKY NOT EVEN GOOD FOR SNAKEBITE.

Dr. Evans, the medical editor of the *Chicago Tribune*, recently discussed the question of snake-bite.

"Should whisky be given?" he asks, and answers "No. All authorities agree on that."

Dr. Evans quotes McFarland, an authority, as follows:

"The usual recommendation is to load up with whisky. In reality nothing could be worse. The use of whisky for snakebite does much harm."

Just think of it, friends. For ages past the man who was near death because of a snakebite has been deluged with whisky. If he died, they declared he was so far gone that even *whisky* would not save him. If he recovered, in like manner they would declare he would have died sure had it not been for the booze; whereas the real truth is, the whisky did harm and *hindered* recovery, *always and every time*.

Here is another straw, which I copy from Mr. Bryan's *Commoner*:

Straws, they say, show the direction of the wind. The fact that the railroads are taking liquor off the diners is a good-sized straw. The sentiment against alcohol is growing.

DRINKING WHISKY TO ENABLE ONE TO STAND SEVERE COLD.

It seems almost impossible to get many people over the notion that whisky is good for snakebites, good for enduring severe cold, etc. Our good friend F. E. Porster, of Morrill, Kansas, sends us the following, by Dr. Charles Lerrigo, and which appears in the *Farmers' Mail and Breeze*.

"Many people are quite sure that when the weather is biting cold they really need some one of these alcoholic drinks to keep them warm.

"A company of strong men thought so when they were traveling across the western plains several years ago. There were 20 of these men. It was winter, and they had to spend a terribly cold night in their camp without any fire. They had food enough and plenty of whisky; but one of the men knew more than the others; and, while they were talking about what they should do to keep warm, he said that for one thing it was not safe for any of them to drink whisky that night. He even went so far as to say that they were far more likely to freeze if they drank it.

"Two of his friends believed him, and the three took no whisky before going to sleep; they were cold in the night, but they were not very uncomfortable. Three of the other men drank a little. They were much colder than the first men, but they did not freeze. Seven men drank more, and their fingers and toes were frostbitten by morning. Six drank a good deal, and they were so badly frozen that they never really got well again. Four drank until they were foolish, and one after the other they all died three or four weeks afterward. The last three men were drunk when they went to bed, and by morning they were frozen to death.

"Each one of these men was strong the day before, and each had the same number of blankets that night. It seemed to be just the whisky and nothing else that made the difference."

HOW COULD IT BE OTHERWISE?

We clip the following from the *Farm, Stock, and Home*:

A LEFT-HANDED "DISASTER."

Prior to January 1, 1916, Breckenridge, Minnesota, was a "wet" town, enjoying all the business advantages that go with the free dispensing of liquors. Since that time the blight of prohibition has struck the little city on the Red River, and this

is how the disaster prophesied has affected the situation: A representative of this paper recently spent a couple of hours looking around the town for evidences of business demoralization. He found a man who had been looking in vain for a suitable house to rent. He found one vacant business place on the main street, and was told that there had been three others, but that they were now occupied, and in each instance by lines of business that provide comfort and well-being for the family. Most disappointing of all to the believer in the theory that local prohibition is bad for a town was the report from the business men. The merchants said their accounts were being better taken care of than before the saloons went, and a banker reported that it was impossible for him to say just how greatly the business of the saloons had injured the town, because of the unusual business conditions prevailing during the past few months, causing an increase in bank deposits since January 1 of something to exceed \$100,000. He had observed no increase in the number of small depositors as yet, but understood that working men's bills were being paid up, and looked for a marked increase in the number of small depositors soon.

This cold businesslike analysis of the effects of prohibition is worth whole reams of hysterical argument either for or against.

"IF PROHIBITION IS ADOPTED, THESE VINEYARDS WILL BE DESTROYED," ETC.

As an illustration of the way the liquor party tries to deceive the people, we clip the following from the *American Issue*:

The liquor interests have posted signs along the line of railroads in vineyards which read: "If prohibition is adopted these vineyards will be destroyed." In some instances their sign posters have done absurd things, for in scores of places the signs are placed in vineyards which do not as a rule ship a ton of grapes to wineries. In one place the proprietor admitted that he had not sold a pound of grapes from his vineyard for wine-making purposes for some years.

I have seen the statement elsewhere that the liquor party were putting up these notices without even asking permission of the owner of the vineyards or other lands where they are sticking them up.

Mr. Root:—I have been riding thru a large grape-growing district, and I noticed large signs posted in every vineyard reading thus: "Prohibition will ruin this fine vineyard. Vote No on both propositions." These vineyard lands will grow almost any cereal crop, and produce great wealth. Can't you say something along dry lines that will help out the dry side of the question? I have come to the conclusion that red liquor and religion will not stay in the same hide. As one goes in, the other comes out.

Rialto, Cal., Sept. 17.

E. J. ATCHLEY.

BOOZE AND HEAT PROSTRATION.

I clip the following from *The Farming Business*:

DOCTORS BLAME ALCOHOL.

As a result of a study into the cases of heat prostration, Dr. Karl Meyer, medical warden of the County Hospital in Chicago, and Dr. Harry Gauss, an interne, have found that ninety-eight per cent of the heat strokes are traceable to alcoholism or the use of alcohol. Their opinion is based on an examination of 155 cases of heat prostration taken to the County Hospital during three days of the extraordinary hot spell in July. The mortality in these

cases was 44 per cent. Dr. Gauss questioned twenty-five patients suffering from heat stroke. All but two had drunk some alcoholic beverage during the day. The twenty-three confessed to libations extending from one bottle to one gallon of beer, besides stronger drinks. Most of the victims admitted the habitual use of intoxicants.

"It was hardly necessary to question many of them," Dr. Meyer said, "because the external evidence of the use of alcohol was so plain. A case of heat prostration without an alcoholic breath seemed a rarity. In fatal cases the use of a stomach pump commonly revealed the fact that the victim had been drinking. Ninety-eight per cent of the cases were due to alcohol."

From the above it transpires that these sad cases are not the result of extremely hot weather, but mostly the effect of intoxicants. For some time I have been watching to see if the dreaded infantile paralysis were not in some similar way connected with intemperate habits on the part of one or both of the parents. It seems that the whole wide world is just now, for the first time, waking up to the direct and indirect consequences of the drink habit.

Right on the heels of the above comes the following kind word:

Mr. Root:—As my heart goes out in sympathy with your kind and loving words for humanity, and against this terrible demon rum, I cannot help sending you the enclosed clipping.

Chicago, Aug. 24.

W. F. COLEMAN.

The inclosure referred to by the brother is nearly a column from the *Chicago Tribune*, repeating at greater length with terrible emphasis the fact that it is *booze* and *not* the hot weather nor hot sun that causes sunstroke. May God be praised that our leading physicians are waking up, and beginning to call things by their right name.

MINNIE ELLET VERSUS A CITY OF 135,000.

During the recent heated period something was said in the great city dailies about policemen being obliged to stand out in the sun without any shelter. Just recently in the city of Akron (only 20 miles from where I sit dictating this), no protest was made when a *liquor concern* proposed giving one of the members of the police force a big umbrella for protection. Now, when said umbrella was decorated with a liquor advertisement, it seems no one felt like taking the responsibility of protesting (among the 135,000 inhabitants) except this one little woman, who has before this had something to say in our pages in regard to temperance matters. With the above explanation read the following, clipped from the *Cleveland Plain Dealer* of Sept. 8:

WATER CONQUERS RUM; CITY CAN'T AFFORD POLICE SHELTER, SO TEMPERANCE STEPS IN.

Akron, financially embarrassed, was unable to buy a big stationary umbrella to shelter its traffic police-

men, so accepted one from a local liquor concern. The umbrella carried a liquor advertisement.

Naturally this rolled Miss Minnie Ellet, temperance leader. City officials explained that the city was broke.

This noon Miss Ellet marched into the city hall with an umbrella of the same size, carrying an advertisement of the virtues of pure water. Chief Durkin accepted it and turned it over to Safety Director Morgan, who installed it at the corner of Main and Quarry streets in the presence of 500 people who watched the performance.

DRUNKS, JAILS, AND UMBRELLAS.

Editor Beacon Journal:—A few weeks ago the newspapers printed the mayor's reason for the many "drunks" that infest our streets—"City prison too small to hold any but the 'disorderlies,' a new city building imperative." Well! The next day another paper told of Belmont County's jail being overflowed and Hancock County's being completely empty. Belmont County is wet; Hancock County is dry. Yesterday I noticed that a brand-new umbrella covered the traffic cop at the flatiron corner. The ad. upon it is "Grossvater." And then I wondered if our great, prosperous, bankrupt city was advertising for more "drunks," or whether she was too poor to buy her own umbrellas, or whether the "Grossvater" and his kin completely "cover" the city. And I wonder why "strong masculine minds" advocate increased jail facilities as a cure for drunkenness. No government arrests a man for buying more groceries or drygoods than he can carry. Why arrest, imprison, and fine him for buying an over-supply of licensed and protected wet goods? If license does away with speakeasies and makes all saloon-keepers law-abiding, where do "drunks" get the where-with-all that makes 'em stagger and blear-eyed even if they're not disorderly!

Aug. 22.

MINNIE J. ELLET.

"AN UNSPEAKABLE CURSE, WITHOUT ONE REDEEMING QUALITY."

We clip the following from the *Methodist Temperance Bulletin*. It seems as if it contains more boiled-down common sense than I ever saw before in regard to the liquor business. Reader, if it is possible, pass it around to your friends who may be likely to vote wet, or, perhaps, not vote at all.

GREAT BUSINESS JOURNAL EXPRESSES ATTITUDE OF AMERICAN INDUSTRY TOWARD DRINK.

The Manufacturers' Journal, of Baltimore, is in some particulars the leading industrial publication of the country. Its influence, especially in the South and East, is very strong. Here is what it says of the "liquor business:"

"We are absolutely, teetotally, and in every way possible, opposed to the whisky industry, not only because of its immoral influence, but from the economic standpoint. It is a curse to the country, of such gigantic proportions that, the sooner it is blotted out, the better it will be for mankind. The billions of dollars that are annually spent in this country constitute one of the most fearful curses ever brought upon the land, and every dollar thus expended is an economic waste and a drain upon the physical, mental, moral, and financial stamina of the country. Moreover, the alliance of the saloon interests with the politics of the country is another curse, and to this influence is due much of the rottenness in American politics. * * * Whisky and the saloon business are an unspeakable curse, without one single solitary redeeming quality."

HIGH-PRESSURE GARDENING

PLANTING A PEACH-TREE.

When we built our little bungalow three years ago there was a peach-tree perhaps two feet tall standing out near the walk in front of the house. Mrs. Root wanted it pulled up, for, she said, "Who wants a peach-tree out in the front yard close to the walk?" But I told her we would let it alone, and then if it did not bear we would dig it up. In grading the lawn the surface was raised nearly a foot; but I put some bricks around the tree in a circle so as to be about a foot away from the stem. Well, last year it bore perhaps a dozen peaches—great big yellow "Rarieripes," as we used to call them; and on this 22d day of September I have just picked a bushel of great beauties, and there are nearly as many more left on the tree. After eating something like half a dozen that were dead ripe I said to Mrs. Root, "Sue, these are the finest peaches I ever tasted." She replied, "Oh! you say that of everything."

I leave it to you, my good friends, is it not a pretty good habit to get into, to be *pleased* with things—especially things that God sends us without labor or expense? for I might almost say this beautiful peach-tree with its luscious load never cost us a copper. We never dug around it nor fertilized it, nor did anything to it, and yet there are all these luscious peaches. For many years it has been said that peaches do not succeed in Medina Co. They grow them by the car-load along the shores of Lake Erie, but very few are grown in this locality. If you urge that this was an exception, and probably just happened so, I have another story to tell.

On the dividing line between our place and that of our daughter Carrie Belle, her folks planted a barberry hedge; in fact, they planted it before we moved in. Well, right close to my garage, on the dividing line, three peach-trees sprang up of their own accord, like the other one, and two of them are not six feet apart. Now, these three seedlings have quite a good crop of great big handsome peaches. They are a little later than our yellow Rarieripes. But if four peach-trees grew without any care or cultivation, and bore fine luscious fruit, why could not somebody plant an orchard in that locality and grow peaches? I think there are a few scattered about the town and over the country; but there is no peach-orchard now very near us. While talking about peaches, here is something else: I guess I had better head it—

A SHORT CUT BETWEEN PRODUCER AND CONSUMER.

You know it has been one of my hobbies to have the producer make the shortest cut possible to the consumer, thus leaving out the middleman and a number of profits. I clip the following from the *Cleveland Plain Dealer*:

MOTORISTS BUY PEACHES; OTTAWA COUNTY GROWERS CUT OUT MIDDLEMAN BY FRONT-DOOR SALES.

PORT CLINTON, Sept. 18.—Hundreds of bushels of peaches were taken out of Ottawa County yesterday by automobile traffic alone. Nearly all touring-cars which came thru Port Clinton during the day visited the peach belt and came back with bushel baskets tied to the running boards or strapped to the car in any possible manner.

Growers of this section have learned the best way to dispose of ripe fruit is to pack it in bushel baskets and have it ready along the road to hand to buyers when they drive thru the country.

Buyers are given choice fruit which is just right for immediate use, and relieve the grower of fruit which he would be unable to ship to a distant market. Many automobiles lined up at fish-houses, but were unable to get any fish yesterday.

Just now our nation is full of automobiles, and they are making them, more and more every day; and lots of people use these automobiles to run around over the country just for pleasure, without any *special* errand. Let me now suggest that, when you take your pleasure-ride, you hunt up the producer of something you need—something in the way of daily food, for instance. See what you are getting—get it fresh; and encourage the producer by paying him spot cash, as illustrated in the above clipping.

By the way, I almost forgot the moral connected with that peach-tree close by a sidewalk. Its great luscious peaches have been slowly ripening so near the public walk that one could reach out and pick a peach without even stepping over on the grass, and yet not a peach has been pilfered so far. Don't you think that speaks well for our town of 3000 population? May God be praised for the privilege of living in a community where they respect the property of another even where no *fence* protects fruit when one is passing along the walk. Is not such a state of morals far better than "stone walls" or "barbed-wire" fences?

"FROM PRODUCER TO CONSUMER"—MORE ABOUT IT.

Just after the above was dictated I found something in the *Rural New-Yorker* in regard to long range and short range between producer and consumer. See below:

EXPENSIVE BREAKFAST FOODS.

Not long ago we had breakfast at a farmhouse back some miles in the country. We were offered a choice of six different kinds of "breakfast food."

Entire wheat boiled soft and served with cream and sugar would have been better than any of the half dozen, and much cheaper. The South Dakota Experiment Station has analyzed 26 different breakfast foods, and finds that they cost all the way from 7 to 44 cents a pound. One sample of "puffed" grain cost 43 cents a pound, while the same grain boiled soft would have been more nutritious, and cost about two cents. When we come to consider this 35-cent dollar let us figure on the breakfast food value of corn, oats, and wheat. We sell wheat at two cents a pound, and buy it back at from 12 to 40 cents!

Just think of it, friends—buying one of the staple daily foods, if not the most staple, for 2 cents a pound instead of paying 40 or even 43 cents! We have been using quite a little oatmeal lately with that nice thick Idaho honey I have been telling you about. Well, without thinking much about it we got it in fancy pasteboard boxes. I do not know how much a pound it cost that way; but you can easily figure it out. Well, we were using so much of it that it occurred to me to ask our grocer if he did not have the flaked oats in bulk. "Oh, yes," he replied; and the price was only 5 cents per lb., whereas if we bought it in pasteboard boxes it would be away up.

Now once more about that automobile. Potatoes are just now at the grocery 45 cents a peck—almost \$2.00 a bushel. Take your automobile and go out where the farmer is digging potatoes, and get enough to last you all winter. Get some potatoes that suit you, and get them for about what the farmer gets by the wagonload. Do the same with winter apples, wheat, eggs, butter, and ever so many other things, and you will save enough in a very short time to help greatly in *paying for the automobile*.

After the above was put in type, when the peaches were almost gone I sent some specimens to our Ohio Experiment Station, and below is a reply from my long-time friend W. J. Green:

Dear Mr. Root:—The peaches which you sent came in good order, altho one or two of them were slightly decayed. The quality is excellent—much better than the average. I have no doubt the size will be sufficient under cultivation. It is too late now to propagate the tree for budding. If the tree should prove to be hardy in bud it would be a very valuable variety.

W. J. GREEN, Horticulturist.

Wooster, O., October 5.

In the above there is something said about the size, as you will notice. Perhaps I should explain that the largest and best had all been used before I thought of sending any to our Experiment Station. The first year the tree bore a dozen or so which were, some of them, extra large.

By the way, I have before mentioned that this peach-tree has never had any pruning; and as now it has a great dense

bushy top, I asked Mr. Green about when to prune it and how to prune it. He replied as follows:

Regarding the time to prune peach-trees I will say that early in the spring is the right season of the year. If you will cut off the tips of the branches at that time, removing nearly half of the growth made this season, the crop of peaches will be improved in size, and the number of bushels not reduced. This cutting-back of the trees every year makes them more stocky and better able to support the crop of fruit. There need not be much thinning-out of branches except in case the branches are, without doubt, too close together.

Wooster, O., Oct. 10.

W. J. GREEN.

SWEET CLOVER; DOES IT GROW BETTER ON HARD SOIL?

I notice in your last booklet you still retain some unfair comparisons in regard to sweet clover growing better on hard soil. The error is made by drawing conclusions from two soils that are different. I nowhere find anything in my experience (which is extensive enough to settle the point), nor in the experience of others, that hard soil is best for sweet clover. It may often be better, but it is not due to its density. It is due to the one fact that it has been for a long time out of cultivation or never cultivated, and the comparison is made with soils worn out by cultivation. The comparison is, therefore, unfair. While sweet clover sprouts better in a firm soil, I have never seen a testimonial that it grew better in a hard soil unless the observation was taken with entirely different soils. I do not think there can be any contradiction on this point. Soils can never be too loose for the best growth of sweet clover, and it germinates better on loose soil than on other clover. For very early spring sowing, soils are never too loose for sweet clover. You evidently have no evidence that hard soil is best for sweet clover. Growth of sweet clover can be increased 200 to 300 per cent by cultivation like that given other crops.

Thompson Station, Tenn.

W. H. ARNOLD.

My good friend, you may be right in regard to the matter; but I believe it is the common experience to find tremendous growths of sweet clover where there has been a brickyard or stone quarry where the surface soil has been all removed, etc. I have already cited railway embankments. Here in Ohio we have miles of road made of crushed limestone; and when sweet clover gets started the seed seems to be carried on the wheels of vehicles, and sweet clover springs up all along the roadside close up to the wagon-track. A few days ago I attempted to make some repairs on the limestone road in front of our home. It is so hard that I could hardly move it or loosen it up with heavy blows with a mason's pick; but where sweet clover had gotten a foothold in that hard crushed limestone it was growing up higher than my head.

A year ago I pictured and wrote up my sweet-clover sport, and sent seeds to a great number of the friends from this one plant. Of course I sowed some of the seed myself, and gave the young plants careful cultivation. But a good many of them were thrown out by the frost during winter. The best

plant on the lot is now (July 21) in full bloom, higher than my head, and covered with bees. This plant was on the edge of a strawberry-bed, and had no cultivation, because I wanted to save the strawberries. The hard uncultivated clay seems to have saved it from being thrown out by the frost. I think I shall have to confess that the seedlings of my pet plant are but little if any different from the common white sweet clover. If anything they bloom a little earlier; and for some reason or other the plant is larger, and there seem to be more bees on this plant than on the common sweet clover all around it. One reason may be that it has a place all by itself, whereas the other plants are close together. As I have said, it has had no cultivation whatever. We should be glad to hear from others to whom we sent seed a year ago; and we shall also be glad to get the experience of all along the line of giving sweet clover cultivation and loose soil like other crops.

"A GOLD-MINE ON EVERY FARM."

We clip the following from the *Florida Grower*:

There is a gold-mine on every farm. From the ground now occupied by stumps sufficient food could be grown in a year to equal in value a good-sized gold nugget. Rarely, if ever before, have food products sold for so high a price. Never before have our farmers had so great an opportunity to make

themselves comfortably wealthy from one crop, and at the same time perform a great service to all the world by feeding the hungry.

From what experience I have had I should say the above is about right—not only down in Florida but here in Ohio. All that is wanted is a man who knows how and is not afraid to work. Our boys and girls in the corn and canning clubs will show us how if we are willing to be taught.

FRUIT-TREES.

Inasmuch as there has been considerable discussion in regard to the best remedy for San Jose scale, I wrote to Prof. Gossard, of the Ohio Experiment Station, and below is his reply:

Mr. A. I. Root:—You need have no hesitation at all in running an advertisement in your journal for scalecide. This is one of the very best of all our scale remedies, and is possibly excelled by none. We constantly make use of it in our work, and for a number of scale species get better results with it than with any other remedy. Scalecide rightly divides with lime-sulphur solution first place among remedies for control of San Jose scale. It is particularly useful on old rough-barked apple and pear trees. I enclose a paper by Mr. Houser on the more recent tests of remedies for San Jose scale.

H. A. GOSSARD, Entomologist.

Wooster, O., Oct. 2.

All of you who are interested in better fruit should get right about it and send for the little book by the scalecide people. See their advertisement.

HEALTH NOTES

"MILK AND HONEY;" GOATS' MILK INSTEAD OF COWS' MILK.

With all the good things that get into GLEANINGS I wonder that milk goats have never been written up. The wisest of men said, "And thou shalt have goats' milk enough for thy food, for the food of thy household, and for the maintenance of thy maidens."—PROVERBS 27:27.

The Bible has much to say about milk, and often speaks of honey. When the Israelites were taken from Egypt the Lord promised them "A good land and a large, unto a land flowing with milk and honey."—Ex. 3:8; and it is well known that the Syrian (or they are now called Nubian) goats of Palestine are the finest goats and best milkers of the goat family. Seventeen times in the Bible is "milk and honey" mentioned. It is well known by every Bible student that goats' milk was used by God's ancient people much more than cows' milk, and I assure you that "milk and honey" will have a new meaning to those who use goats' milk and honey. As so many beekeepers are "little landers," it strikes me that they should keep goats, not only to have "milk and honey" but to have the very best, cleanest, easiest digested, most healthful, as well as the cheapest milk, and to be sure that the blessed babies do not get the dread tuberculosis that is destroying its thousands of innocents. "Innoxious, noninfectious, sanitary nourishment for the infant,

the child, the invalid, and the aged, has been until recently a reflective problem for the medical man as well as the layman;" but goats' milk is solving the problem.

"The fourth annual report of the District of Columbia Association for the prevention of tuberculosis, and this is from the most reliable and highest source of information in the United States, tells us that one-fourth of all cases of tuberculosis among children under 16 years of age, and one-eighth of all fatal cases under 5 years of age, are due to bovine tuberculosis. And among children fed exclusively on cows' milk, nine out of ten cases of fatal tuberculosis revealed that five, or 55 per cent, were due to bovine infection. The most noted authorities of Europe and America agree that the qualities of goats' milk lie in its chemical composition, its immunity from danger of carrying the germs of tuberculosis, and make it the *ne plus ultra* of all foods. As a prophecy, remember that the goat will be the foster-mother and wet-nurse of generations yet unborn."—LOUIS G. KNOX, M. D., D. V. S.

Most people have an idea that goats' milk has some strong, pungent, bitter, or unpleasant taste. I assure you that if you like milk you would drink goats' milk and never know the difference unless you detected that it was exceptionally good.

My wife objected to my getting goats, because I am so "finicky" about the milk I drink. Now that I have goats, I am so "finicky" about my milk that

I am very touchy about the cows' milk I sometimes get in some places. Do you like a cow smell? Well, do you like the cow smell in your milk? How often do you see a really clean milk cow? They are usually smeared with their droppings, and their filthy tail is everlastingly on the swing. My goats are white, and you will never see them unclean. I can sweep their droppings away with a broom. Their tail is short, and never in the way, nor filthy. They are as clean about their food as the ordinary person. They prefer weeds, leaves, shrubs, etc., to grass, but it must all be clean. They are the most docile and lovable of pets; can be kept on one-eighth of a cow's keep; will eat the scraps of bread, fruit, and potato parings from the kitchen (if they are perfectly clean), and will cost for keep but little over one dollar per month if you buy all the feed, and will give from one to four quarts of milk per day, that is twice as rich as cows' milk, and absolutely immune to tuberculosis. Thorobred Swiss milch goats are expensive; but their crosses on the common goat are cheaper, and sometimes nearly as good. I should like to see more beekeepers and little landers enjoying real "milk and honey," the best milk, the only safe milk. I have nothing for sale.

Noosack, Wash.

REV. ALSON W. STEERS.

We have already had several suggestions that goats' milk be recommended in place of cows' milk; and one writer sent us a number of clippings telling where babies' lives have been saved by substituting goats' milk for cows' milk. But I have always had a prejudice against goats because of the smell that I supposed pertained to all goats. As the writer makes no mention of a disagreeable smell of the animal I have been wondering if there is any particular strain of goats that is devoid of this smell. And besides the smell they have always seemed to me to be very uncouth-looking animals—more so than our other domestic animals. Is it not true that a certain kind of rather expensive cheese is made from goats' milk? If what the writer claims in the above is true, perhaps it may be well to have the matter discussed a little more in GLEANINGS. We have had several sample copies of a periodical devoted exclusively, or nearly so, to the breeding and care of goats.

Later.—Recently while traveling in the northern part of Michigan the train stopped at a junction for some little time. Close by the train a man came up with a little wagon drawn by a goat. It had horns, and was almost as large as a Jersey cow. In fact, I did not know before that goats ever grew to such a size. This big goat seemed to be a novelty to the passengers, for they all began to push their heads out of the window, and finally they gathered around the man and his cart. He was selling peanuts and popcorn. The goat was evidently used to attract attention; and his owner by means of it gathered in quite a lot of dimes and nickels. Was this big goat a large kind of goat, or was he a giant among his own species?

ANIMALS, 95 PER CENT NORMAL AT BIRTH;
HUMANITY ONLY 20 PER CENT; WHY?

I have before made frequent mention of Prof. W. T. Shannon, of Delaware, Ohio. His lifework is not only for better babies but better men and women, "lifting up the fallen," etc. We give below the first page of a six-page leaflet. If you want to help, send for a sample copy of his journal, *Practical Eugenics*, or, better still, send 50 cents and get it a whole year. Address as above.

PRACTICAL EUGENICS.

We have more than eight hundred weekly and monthly publications devoted to better fruit, vegetables, cereals, bees, chickens, and stock. Largely thru their agency we have doubled the variety, size, and quality of our vegetables and fruits, and produced our popular varieties of poultry and breeds of domestic animals. Nearly every man at the head of a family, whether he owns an acre of land or not, subscribes for one or more of these papers. Their wisdom has our commendation.

Not one family in twenty takes a magazine or reads a book devoted to the teaching of sane and practical methods of improving the race of mankind. We have turned the advent of childhood over to ignorance and selfishness. Prudery and ignorance prevail, instead of intelligent child culture. The double standard of morals, so largely responsible for the degenerating habits of tobacco, alcohol, and immorality, goes unchallenged. Young people are teased about sweethearts, marriage is a joke, divorce is an ever increasing reality, and degeneracy threatens the race.

"SMOKING AND FIRE LOSS OF LIFE AND PROPERTY."

The above heading I clipped from a little pamphlet of eight pages and from the eight pages I clip as follows:

This article was prepared by Mr. Williams, at the request of Mr. Rolla V. Watt, Manager of the Royal Insurance Company, San Francisco, California, specially for Manfred P. Welcher, Field Secretary Anti-cigarette League of America, Eastern Division.

Copies of this folder will be sent by Mr. Welcher at 5 cts. for 10 copies; 50 cts. for 100; \$5.00 for 1000. General delivery, Los Angeles, California.

The pamphlet contains a vast amount of important matter in regard to fires caused by smoking, particularly from cigarettes; and at the close we read as follows:

The great Baltimore fire, costing the insurance companies fifty million dollars, was caused by a cigarette thrown into rubbish, where it smoldered and finally created the conflagration which looked for a time as if it would sweep the entire city.

Every time a cigar, pipe, or cigarette is lighted, a fire is started; and whether it will become a conflagration that will destroy a block or a whole city depends upon the care or carelessness of the smoker.

There is not an hour of the day that some fire is not being caused by a careless smoker, either with matches or by throwing away his stub of a cigar or cigarette, and some drastic nation-wide action must be taken to prevent it.

The state of Washington passed a law prohibiting the use and sale of cigarettes, and almost instantly the number of preventable fires was reduced.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐
- THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐
- MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the Outlook. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐
- CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐
- THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐
- SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐
- THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐
- BEES AND POULTRY, how they work together profitably for others—why not for you! Some valuable pointers on hens and honeybees. Free.
- ☐
- HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐
- THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐
- WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐
- THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐
- SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
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- ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

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Whys and Wherefores of Fall Spraying

is the title of a little booklet, giving seven reasons, official and non-official, why it is the best time to spray. This booklet will be sent out by the B. G. Pratt Co., 50 Church St., New York, manufacturers of the well-known "SCALECIDE" at a very early date. If you are not on their mailing list, send them a postal today giving the number of your trees and your dealer's name and you will receive a copy free. Address Dept. 6.

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Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

A No. 1 clover in 120-lb. cases at 8 cts. Sample at 8 cts. H. C. LEE, Brooksville, Ky.

In new 60-lb. cans, clover honey, 8 cts.; buckwheat, 7. G. H. ADAMS, box 184, Schenectady, N. Y.

A1 clover—amber-blend honey in new 60-lb. cans, at 8 cts. VAN WYNGARDEN BROS., Hebron, Ind.

FOR SALE.—Fine extracted buckwheat honey, \$8 per case of 118 lbs. net. LEROY LLOYD, Caywood, N. Y.

Buckwheat honey, comb and extracted; also clover extracted, 60-lb. cans. E. L. LANE, Trumansburg, N. Y.

Well-ripened clover and buckwheat honey in new 60-lb. cans—two cans to the case. B. B. COGGSHALL, Groton, N. Y.

Clover-basswood blend and buckwheat honey. Two 60-lb. cans to the case, 8 cts. per lb. EARL RULISON, Rt. 1, Amsterdam, N. Y.

Clover honey (1916 crop) of very heavy body—a fancy article. Write for prices and a 5-cent sample. M. W. HARRINGTON, Williamsburg, Iowa.

Light-amber extracted honey, 60-lb. cans, at 6 cts. per lb., f. o. b. cars. Sample, 10 cts. C. R. ALLEN, Vicksburg, Miss.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7½ cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at 8½ cts. per lb. Also fancy and No. 1 clover comb honey, 4¼ x 1½ sections. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW Co., Clarion, Mich.

FOR SALE.—A limited quantity of choice stock buckwheat and pure clover honey in 60-lb. cans and 5-lb. pails. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case; extracted in 60-lb. cans; clover, 9 cts.; amber, 8 cts. Amber in pails, 6 ten-pound or 12 five-pound to case at \$6.00 per case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—5000 lbs. fancy extracted white-clover honey; also a quantity of extracted heartsease and Spanish-needle blend, put up in barrels of about 550 lbs. net, and new 60-lb. cans. Honey is thoroughly ripened, and there is none better on the market. Prices reasonable. Sample, 10 cts. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW Co., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—Comb honey. What have you to offer? R. V. STROUT, 325 11th St., S. W., Washington, D. C.

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York.

WANTED.—Extracted honey in any lots. Send sample and prices. ED. SWENSON, Spring Valley, Minn.

WANTED.—Beeswax. State price and quantity. RUDOLPH OSTHEIMER, Sandusky, O.

WANTED.—Comb honey, fancy and No. 1 white clover; also buckwheat comb; glassed sections preferred. HOFFMAN & HAUCK, Richmond Hill, N. Y.

WANTED.—Comb and extracted honey, light and dark; any quantity; send sample and price. THE BEEHIVE, Merville, Iowa.

WANTED.—1000 lbs. extracted white-clover honey. Give price. D. KRAMER, Scholls' Lane and Eastern Ave., Cincinnati, Ohio.

WANTED.—10,000 lbs. of extracted honey; state price and how packed; send sample. L. D. MARTIN, 206 E. Jefferson St., Louisville, Ky.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares. SUPERIOR HONEY Co., Ogden, Utah.

FOR SALE

White-blooming sweet clover, only 9 cts. per lb. GEORGE M. CALLEN, Selma, Ala.

Get our new Rubber Stamp and Label Catalog. ACME PRINTING Co., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL Co., Clintonville, Ct.

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FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Q. C. hive's yield, account of its winter protectiveness, equable temperature, brood-nest work, incentive, etc., sixty pounds more than average of others. Can you afford not to test it? Address W. F. MCCREADY, box 1, Estero, Fla.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

A fine camera, 6½ x 8½, with \$35.00 lens, Bausch & Lomb shutter, 6 double plate-holders, etc. Outfit cost \$85. For exchange for Victrola of equal value. Also 5x8 camera and 4 double plate-holders, etc., to exchange for offers. Both above in perfect order. C. A. GRAVES, Ravenna, Ohio.

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A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

THE SOUTH FOR FARM PROFITS.—Southern lands are low in price—give large yields of corn and other grains, grasses, and forage crops; all kinds truck; grow fine fruit. You can get good lands in healthful location, where climate is pleasant and works for you, where two and three crops grow annually, for \$15 to \$50 an acre, according to improvements. Great opportunity for general farmers, stock-raisers, dairymen, poultry-raisers, fruit and truck growers. Information on request. M. V. RICHARDS, Ind. and Agr. Commissioner, Room 27, Southern Railway, Washington, D. C.

IN THE SUNNY SOUTH.—300 colonies of bees; sell all or part at a bargain; good honey-gatherers, no disease; straight combs; in No. 1 good shape. To the party taking all, will put in team of horses, 200 queen-excluders, 1000 extra frames, one 4-frame extractor, hand or power, practically new; one 10-inch foundation-mill, new, and 300 full-depth 10-frame supers with frames. If you want to go into the bee business where the bees fly nearly every day in the year this is the place. Some of these same colonies gathered 275 lbs. this year. Will treat you right. \$1500 takes it all. NUECES VALLEY APIARIES, Calallen, Texas.

WANTS AND EXCHANGES

WANTED.—Fifty to eighty colonies bees in ten-frame hives. G. BRUNDAGE, Salisbury Mills, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—200 colonies mixed bees in chaff hives, \$4.00 per colony at the yard; fine condition. R. J. SMITH, Ticonderoga, N. Y.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y., East End.

FOR SALE.—36 colonies of Italian bees; will be sold cheap. Hives, bees, and stands in the best of condition. EDW. NESVACIL, Mazomanie, Wis.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each. HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR Co., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, A'a.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$5.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY Co., Canton, Ohio.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Rt. 3, Williamstown, Ky.

I will sell at auction 60 stands of bees Nov. 9, and other stock and machinery; the farm of 100 acres—good land with two sets of buildings; one set on the 80-acre farm, and one set on the 20-acre farm. The farms join. They are to be sold inside of a year to settle estate. MRS. ANGELINA A. HUFFMAN, Administratrix, Rt. 3, Nashville, Tenn.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

HOLLOPETER'S honey-gathering strain of Italians are now at their best. This strain has a record of 100 lbs. more honey per colony than the average colony. Safe arrival by return mail. Untested queens, each, 75 cts.; 10 for \$6.00, 20 for \$10.00. Tested queens, each, \$1.00. 1 lb. bees with queen, \$2.00. We are booking orders now for spring delivery. J. B. HOLLOPETER, Pentz, Pa.

HELP WANTED

WANTED.—Experienced young man for our bee-keeping supply department; one who has a knowledge of beekeeping and is not afraid to work. Give reference, and state salary expected. THE FRED W. MUTH CO., "The Busy Bee Men," 204 Walnut St., Cincinnati, Ohio.

TRADE NOTES

SECOND-HAND 60-LB. CANS.

Our supply of second-hand cans at New York has been disposed of; but we still have a good supply both at Medina and Philadelphia of choice cans suitable for use again in shipping honey. These we are selling at \$4.00 for 10 cases; \$8.50 for 25 cases; \$30.00 for 100 cases.

CHIPPED TUMBLERS CHEAP.

We again have a supply of two or three hundred cases of 2 dozen each of tin-top tumblers holding 6½ oz. of honey, or ¼ lb. of jelly. They have the edges slightly chipped so they cannot be sealed airtight for shipping, but will serve as a cheap container for some uses. We offer them, while they last, at \$2.00 for ten cases of 2 dozen each, including the tin tops.

NO. 4 EXTRACTOR FOR SHORT FRAMES CHEAP.

One of our dealers has an overstock of No. 4 Novice extractors which he offers to return at a price that permits us to offer them at \$6.50 each. If among our readers there is any one who uses short frames not over 13¼ inches wide under top-bar, or 13 inches deep or less than these dimensions here is a bargain for him. Just half present list price of this size of machine.

MASON FRUIT-JARS.

We have a surplus stock of choice Atlas Mason fruit-jars which we offer, to reduce stock, at the following prices which are good only while this stock lasts, and for shipment from Medina, Ohio, only. Pint Mason jars, 45 cts. per doz.; \$5.25 per gross. Quart Mason jars, 48 cts. per doz.; \$5.50 per gross. Two-quart Mason jars, 75 cts. per doz.; \$8.50 per gross.

These are packed in paper cartons of one dozen each. Pint size would stand reshipping short distances filled with honey, altho we would not recommend it.

SPECIAL BARGAIN IN WINTER HIVES.

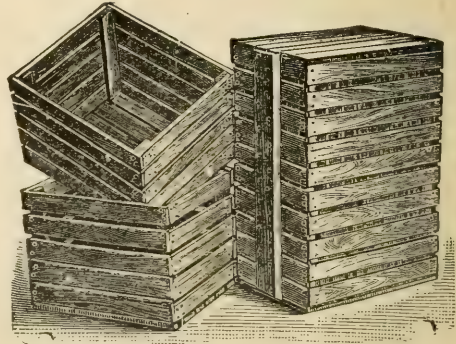
The time for putting bees into winter quarters is at hand. There may be some who would try out the double-walled hives if they could buy them at bargain prices. We have available for shipment from St. Louis, Mo., if ordered this month, fifty each of eight-frame and ten-frame Dovetailed chaff hives of old-style with tight bottom and wood cover. We offer these, to close them out quick, at just half price.

They are one-story with telescope cover and Hoffman frames, put up in crates of 5 each. We offer the eight-frame at \$7.00 per crate of 5, or \$60.00 for the lot of 50 hives. The ten-frame at \$7.50 per

crate of 5, or \$65.00 for the lot of 50 hives. This is as low as our wholesale price on single-walled hives, and surely is a bargain to any one who can use them. Here is a chance to test the advantage of a double-walled hive over a single-wall without the hives costing you any more. Stock must be moved at once, therefore we are placing the price at a figure that should find a buyer quickly.

BUSHEL BOXES.

We have on hand, ready for immediate shipment, a good stock of these boxes, packed as shown in cut. They are made with oak corner posts and bottom end slats to receive the nails, the remainder of the box being basswood. They are very convenient, and popular for handling potatoes, apples, onions, and other farm crops. They hold a heaped bushel level full, so they can be stacked any height desired. To reduce stock we offer them for a short time at the following special prices:



All-slatted bushel boxes, per crate of 14, \$2.25.

Slatted bushel boxes, per crate of 12, \$2.10.

Galvanized bound boxes, per crate of 12, \$2.75.

In lots of 10 crates or more, 5 per cent discount.

The all-slatted is the cheapest, and the most popular style. Two are nailed in each package, and sufficient nails are included for the remainder.

THE A. I. ROOT CO., Medina, O.

Special Notices by A. I. Root

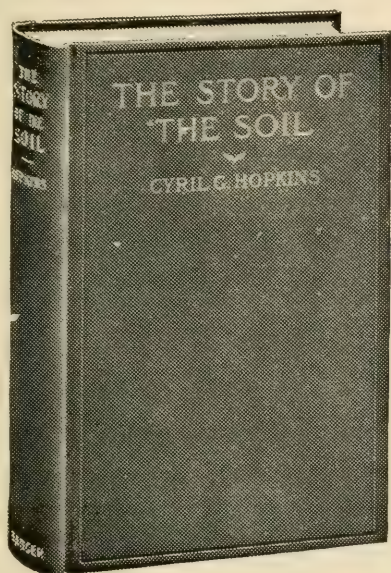
T. B. TERRY AND "THE STORY OF THE SOIL."

Some of our readers may wonder that I have had so little to say about my long-time friend T. B. Terry since his death on the first day of this year. Well, it is not because I have forgotten him. There is hardly a day but that I think of him, and feel lonesome without his counsel. The matter was brought to mind by looking over the book, "The Story of the Soil," which our people have been offering to the readers of GLEANINGS at a ridiculously low price. Well, in this book there is a report of one of Terry's happy talks, given at a farmers' institute, that covers about 20 pages. That talk alone is, in my mind, worth the price of the book; yes, and GLEANINGS thrown in; and yet you are offered both the book and GLEANINGS for only \$1.15. Well, even if the 15 cents does not come anywhere near the cost of the book to us, the book will do a lot of good to the readers of GLEANINGS. See advertisement on the back cover of this issue.

Convention Notices

The twenty-sixth annual meeting of the Illinois State Beekeepers' Association will be held in Springfield on Wednesday and Thursday, November 15 and 16, 1916. Further notice will be given in the dailies and individual notices with program sent to all the members of the association.

Springfield, Ill., Oct. 9. JAS. A. STONE, Sec.



A Wonderful Book

This is the judgment of
every thinking man
who has read

"The Story of
the Soil" By Prof. i
Cyril G. Hopkins

It covers the whole field of life on the
farm, soil fertility, and perma-
nent agriculture.

What They Say About It

"Holds the intense interest of the reader."
—Ohio Farmer.

"The farmers owe Mr. Hopkins a debt
of gratitude."
—Chicago Tribune.

"Worth millions to the farmers of
America."
—Prairie Farmer.

"Ought to be in the hands of every
farmer in the world."
—Farmer and Breeder.

"I enjoyed every word of it. A fasci-
nating novel about the soil."
—Editor American Agriculturist.

"A wealth of information."
—Editor Wallace's Farmer.

"The book is destined to do more good
and stir more thought among the farmers
of this country than any other publication
that has yet appeared."
—Ex-Gov. W. D. Hoard.

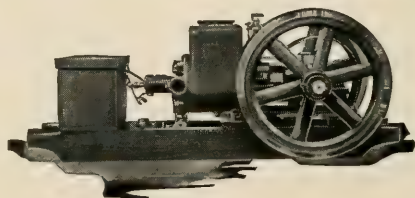
Don't Wait Till They are Gone

This book formerly sold for \$1.62 in cloth binding. A few days
ago we secured from the publishers the entire remaining stock of this
great book in paper binding and can offer it with "Gleanings in Bee
Culture" for one year at \$1.15. When this consignment of these books
is exhausted we shall be unable to furnish more.

DON'T WAIT. Get in your order today.

Gleanings in Bee Culture, Medina, Ohio

Best and a Bargain



"The Busy Bee," 1 1-2 H. P. Gasoline Engine

WILL you be wanting a gasoline engine during the next year? If so, there is a sure-enough bargain awaiting you now that may not be waiting next spring or summer. It is the chance (while they last) to buy one of our famous "Busy Bee" 1 1-2-horsepower engines for only \$36, if ordered of The A. I. Root Co., Medina, O. The Root Company unqualifiedly recommends this engine, especially for extracting power. They say that it is always satisfactory. Ask them.

These engines in the stock of the Root Company can be sold today at the low cost of \$36 only because they were purchased before January 1 last. When this stock of the Root Company is exhausted, this engine cannot be purchased at \$36 of anybody anywhere. It's a great chance for anybody needing an engine now or soon.

GILSON MFG. CO.

PORT WASHINGTON, WIS.

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in
Bee Culture

IRRIGATION IN THE IMPERIAL VALLEY

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
- Five-gallon Cans
- Five and Ten Pound Pails

Four per cent Discount on Goods for Next Year's Use

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Raw Furs My graders' guide and price list are FREE....

Furs held separate on request. Rug and robe making a specialty. No commission or express to pay when you ship to

GEO. E. KRAMER, Valencia, Pa.
Mention "Gleanings"



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To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.
Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery—a month or more in some instances. Goods ordered now carry 4 per cent discount during October. Send in your order just as soon as you find out just what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1...	holding 24 sections, 4¼x1½, showing 4	10, \$2.00; 100, \$18.00
No. 3...	holding 12 sections, 4¼x1½, showing 3	10, \$2.00; 100, \$18.00
No. 1½...	holding 24 sections, 4¼x1½, showing 4	10, \$1.90; 100, \$17.00
No. 6...	holding 24 sections, 3¾x5x1½, showing 4	10, \$1.80; 100, \$16.00
No. 8...	holding 24 sections, 4x5x1½, showing 4	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

		with 3-inch glass	with 2-inch glass
No. 11...	Same as No. 1...Nailed, 35c; in flat, 1,	25c; 10, \$2.30; 100, \$21.00	100, \$20.00
No. 13...	Same as No. 3...Nailed, 22c; in flat, 1,	15c; 10, \$1.40; 100, \$12.50	100, \$12.00
No. 11½...	Same as No. 1½...Nailed, 35c; in flat, 1,	25c; 10, \$2.20; 100, \$20.00	100, \$19.00
No. 16...	Same as No. 6...Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	
No. 18...	Same as No. 8...Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK
where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the side not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

**GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.**

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13 1/2 gross. The top of each section in this grade must be stamped, "Net weight not less than 12 1/2 oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades.

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.
A few cars of California Water White Sage.
A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

PHOENIX.—There is a marked increase in prices as well as inquiry for our amber honey. Amber in tin five-gallon cans, 2 to the case, offered at 6 cts. f. o. b. Phoenix for what seems to be the last car lot unsold as practically all of our season's crop has been sold. Wax is firm at 25 to 26.

Phoenix, Oct. 21.

WM. LOSSING.

KANSAS CITY.—The demand for honey is not improving. However, we look for a better market with colder weather. We quote fancy comb honey, per case, \$3.00; No. 1, \$2.90; No. 2, \$2.75. White extracted honey brings 8½ to 9; light amber in cans, 7½; amber in cans, 8. Clean average yellow beeswax brings 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Oct. 21.

BUFFALO.—We report a better demand for comb honey and all available stock on the market is clearing in good shape. Stocks on hand are light, and receipts continue small. We quote extra fancy comb honey, per lb., 16; fancy, 15½; No. 1, 15; No. 2, 13 to 14; white extracted honey, 8; light amber, in cans, 7 to 7½. Clean average yellow beeswax brings about 32.

Buffalo, Oct. 25.

GLEASON & LANSING.

LOS ANGELES.—Only small lots of extracted are in the hands of producers. Dealers have about enough for local use. A large stock of comb honey is looking for a fair market, mostly in hands of producers; quality fair. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 2, \$2.50. White extracted honey brings 8½; light amber, in cans, 8; amber, 7. Clean average yellow beeswax brings 35.

Los Angeles, Oct. 23.

GEO. L. EMERSON.

ALBANY.—There is a good demand for straight grades of clover and buckwheat, while mixed quality sells at buyer's prices. We quote fancy white, 15; No. 1, 14; mixed, 13; buckwheat, 13; mixed, 12. The crop is large, and we don't refuse reasonable offers rather than lose sale. Fancy comb honey brings 15; No. 1, 14; No. 2, 12 to 13. White extracted honey brings 8 cts.; light amber, in cans, 7 to 7½; amber, in cans, 7. Clean average yellow beeswax brings 30 to 32.

Albany, Oct. 25.

H. R. WRIGHT.

TEXAS.—The long-protracted drouth has been broken in most sections of the state, which will, if we have late frost, give the bees a chance to replenish some much-needed stores. There is but little change in market since our last quotations. Beekeepers who did not have an established market for their honey, and for some time feared that they would not be able to dispose of their crop, are now finding ready sale, and most of them are pretty well sold out. We quote No. 1, bulk, in two 60-lb. cans, 10 and 10½; No. 2 ditto, 8 to 9, or light amber. Light-amber, in cans, brings 6 to 8. Clean average yellow beeswax brings 27 to 28.

Texas, Oct. 19.

J. A. SIMMONS.

PITTSBURG.—Receipts are liberal, demand fair, and with continued heavy receipts any change will be lower. Extra fancy, per case, brings \$4.25; fancy, \$3.75; No. 1, \$3.25; buckwheat, \$3.00 to \$3.25. Pittsburgh, Oct. 25. W. E. OSBORN CO.

CHICAGO.—Prices are ranging from 15 cts. to 16 cts. per lb. for the fancy to extra fancy, and 14 to 15 cts. per lb. for the No. 1 grade. Amber grades from 1 to 3 cts. per lb. less. Extracted—the best grades of white are bringing 8 cts. per lb., light ambers about 7 cts. per lb., and the dark ambers at 5 to 6 cts. per lb. Beeswax 30 to 32 cts. per lb.

Chicago, Ill., Oct. 18. R. A. BURNETT & Co.

ST. LOUIS.—Prices are unchanged since our last quotation. The demand for extracted honey is good, and comb honey is moving fairly well, with prospects of a better demand soon. Our market is not overstocked, but supplies are ample for the demand. We quote extra fancy, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.50 to \$2.75. White extracted honey brings 9; light amber, in cans, 7½ to 8; amber, in cans, 6½ to 7; in barrels, 5½ to 6. Clean, average yellow beeswax brings 28½.

R. HARTMANN PRODUCE CO.

St. Louis, Oct. 25.

PHILADELPHIA.—There is no special change in our market since last quotations. Market is in good shape for shipments of new honey. We have an outlet for fancy stock; can also move under grades at the right price. Let us know what you have. We quote extra fancy comb honey, per pound, 15 to 16; fancy, 14 to 15; No. 1, 12 to 13; No. 2, 9 to 10. White extracted honey brings 8 to 8½; light amber, in cans, 6 to 6½; amber, 5½ to 6. Clean average yellow beeswax brings 28 to 30.

Philadelphia, Oct. 25.

CHAS. MUNDER.

BOSTON.—Demand for honey is good. Fancy comb brings \$3.75 per 20 frames; No. 1, \$3.25 to \$3.50; No. 2, \$2.25 to \$2.50. Extracted white, 60-lb. cans, eastern, brings 9½ to 12.

Boston, Oct. 24.

BLAKE, LEE CO.

NEW YORK.—Nothing new to report. Conditions continue the same. HILDRETH & SEGELKEN.

New York, Oct. 25.

HAMILTON.—Demand is good; quality is the best we have had in years. We quote extra fancy, per case, \$2.50; No. 1, \$2.25; No. 2, \$1.70; white extracted in 60-lb. tins, 12; light amber in cans, 10.

McNab Street Branch, F. W. FEARMAN CO., Ltd.
Hamilton, Ont., Oct. 24.

TORONTO.—The situation since our last report of October 10 is unchanged, and prices ruling are the same as before. We quote white extracted, in 60-lb. tins, 12½.

Toronto, Oct. 24.

EBY-BLAIN, Ltd.

LIVERPOOL.—We quote for salable parcels on this market as follows: Owing to very large arrivals of Chilean the market is quiet. Recent values on the basis of pile 3 are \$8.80, CIF; Hayti white is worth \$11.04 ex store. Californian in cases brings \$11.52 to \$14.40 per cwt. ex store, as in quality. Chilean beeswax brings \$34.25 per cwt.; Oto, \$39.00.

Liverpool, Oct. 9.

TAYLOR & CO.

MATANZAS.—Light amber extracted in barrels brings 46 cts.; amber, 46 cts.

Matanzas, Cuba, Oct. 15.

ADOLFO MARZOL.

MEDINA.—Somewhat contrary to our opinion, comb-honey offers have appeared from the West in greater numbers the past two weeks than usual at this time of the year, and the tendency in some localities is toward lower prices. We confidently expect, however, a stronger market soon. Extracted honey is firm.

Medina, Oct. 25.

THE A. I. ROOT CO.

Home Markets for Honey

If you are developing a local market for your honey, you will be interested in the following from a Wisconsin producer, who writes regarding the 64-page book, "The Use of Honey in Cooking." He says:

"We received the honey-recipe books O. K. and were more than pleased with them as they were one of the finest boosts for getting honey before the people that we could have procured.

"The people were clamoring for them and our booth was one of the leading attractions at the fair.

"One of the members of the association who was putting out small glass containers sold one to a lady from Minneapolis, who was attending the fair here. This morning he received an order that she had taken among friends at home to ship 25 gallons of extracted honey to Minneapolis. So it pays to advertise, and your recipe books do the work." (Name on request.)

We offer these books, "The Use of Honey in Cooking, 64 pages, 115 tested honey recipes, with many facts regarding honey, at 10 cts. each, postpaid. In quantity lots with your advertisement on the back cover (no other address given in the book) as follows:

100 copies, printed as above....	\$ 4.50
250 copies, printed as above....	9.25
500 copies, printed as above....	17.25
1000 copies, printed as above....	25.00

If sent by mail, postage extra.

Order a quantity and watch your honey go.

The A. I. Root Company

Medina, Ohio

Are You Interested in Stars, Birds, Trees, Rocks, Plants, Pets

or anything else in the
Great Out-of-doors or Nature
Indoors?

Then subscribe to
The Guide to Nature

Send twenty-five cents for four-
months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

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The World's Richest Man

began the foundation of his
fortune by Saving Money.

YOU can profitably follow
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not attain wealth, you will
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independence.

This bank invites your account
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capital and surplus, conservative
management, and strict state
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**THE SAVINGS
DEPOSIT BANK CO.**
MEDINA, OHIO

A. T. SPITZER, Pres.

E. R. ROOT, Vice-Pres.

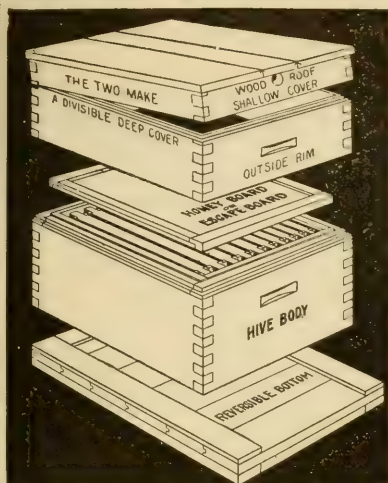
E. B. SPITZER, Cashier.

ASSETS OVER ONE MILLION DOLLARS

Bees, Fruit, and Poultry

An ideal combination for the small-place own-
er. Gleanings in Bee Culture, Green's Fruit
Grower, and American Poultry Advocate are
the highest authority on these three subjects.
Then why not take advantage of our low-price
clubbing offer of all three journals for one
year for only \$1.00? . . . Write today.

Gleanings in Bee Culture
Medina, Ohio



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

A. G. Woodman Co., Grand Rapids, Mich.

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

HONEY-JARS

No. 25 one-pound screw-cap, \$4.75 a gross. Discount on quantity. Light honey, clover flavor, two 60-lb. cans, 9 cts. per lb. Sage honey, 9 3/4 cts. Catalog of apiarian supplies and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies—full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

BEE SUPPLIES Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

3 Garden Tools in 1

The **BARKER** Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

Barker Mfg. Co.
Box 117 David City, Nebr.

CANDY

Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter. It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. PREPARE! Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make it into

Dadant's Foundation

for you.

If you prefer, we will pay you our best trade price in exchange for BEE SUPPLIES.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED at all times.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor
A. I. Root, Editor Home Department

H. H. Root, Managing Editor
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

NOVEMBER 1, 1916

NO. 21

EDITORIAL

GLEANINGS A MONTHLY AFTER JANUARY 1

WE have long cherished the hope of making GLEANINGS a monthly publication—one that might compare favorably with the standard magazines that now grace our tables. The time now seems auspicious for starting an improvement in this direction, and we feel sure that our readers, when they see what we are going to give them during the next year, will be delighted.

The first and foremost purpose of the change from a semi-monthly to a monthly is to give the editors of GLEANINGS the needed time to make a better and handsomer journal; for the financial fact is that the cost of the new monthly for a year will exceed the present yearly cost of the semi-monthly. While some economies will be effected in the amount of paper used and in mailing, this saving will be put into a better quality of paper, better printing, better engravings, better subject-matter, *and a larger journal*.

Practically all the magazines in the country are now either in the weekly or monthly class. There is no need of a weekly bee publication, and no good reason for continuing a semi-monthly if it stands in the way of an improved monthly publication of a higher class.

If, at the end of the year 1917, there should be a subscriber to GLEANINGS (now paid in advance for the next year) who feels that he has not had his full money's worth in the new and better monthly journal, we will then refund to him the amount of his subscription upon his request to do so.

A. I. Root will continue to give the readers of GLEANINGS nearly if not quite as much of his matter in the new monthly as in the present semi-monthly for two issues.

We are looking forward to a bigger and better GLEANINGS with enthusiasm, and hope and trust that every reader will share this enthusiasm with us.

Asters Yielding Better after Frost

OUR Mr. Mel Pritchard, who has charge of our queen-rearing yards at the bass-woods, reports that bees worked well this fall on asters, but while the flow was at no time heavy it was continuous.

When we asked him if the frosts had not pretty well cleaned them out—"Cleaned them out?" he said; "why, I have always noticed that the asters yield better *after* frost than *before*."

A few days ago we had a very severe frost—so severe that we naturally concluded that even the asters that would stand ordinary frost would go down with all other vegetation; but they did not. Even at this date, Oct. 21, the asters are looking well;

and if warm weather is coming on they will yield something yet, according to Mr. Pritchard.

Death of Prof. A. J. Cook

WE have known for some time that Dr. Cook, State Horticultural Commissioner of California, was in ill health; and we also knew that he was obliged to drop his work; but we were not aware that death was so near. We see by the *Western Honey Bee* for October that he died September 29 last.

Dear old Prof. Cook was one of the pioneers in modern beekeeping in this country in the early '70's and '80's. He was not only a prominent writer but one of the most

influential beekeepers in the country. A full sketch of his life will be given in our next issue.

Our Cover Picture

THE picture on the cover shows one of the big irrigation ditches in southern California that has transformed what was formerly one of the great American deserts into one of the most productive localities in the world. Imperial Valley now contains four million acres under cultivation, with two million more that will be made available as soon as some of these big ditches can be built thru them.

It is one of the most fertile spots in the United States. The soil is deep and rich, and irrigation has supplied the one thing lacking—water. As alfalfa is one of the main crops it follows that beekeeping is an important industry. Usually bees follow where irrigation is opened up.

Unfortunately there have been two poor seasons in Imperial Valley; and, unfortunately, it is already overstocked with bees and beekeepers; but when those two million acres are opened with some of these big ditches there will be more room for beekeepers.

Wintering Bees in Cheap Cases

AT our Strongsville yard, we have wintered bees very nicely by putting the hives about four inches apart in long rows, and crowding straw between the hives around them and on top. No straw was placed *in front* of the hives. Boards or roofing paper placed on top and at the back keep the packing dry. The plan answers very well in lieu of more expensive and (we may say) better winter cases.

The objection to it (and it is quite a serious one some open winters) is the drifting of the bees. The strongest colonies are apt to draw from the weaker. When the entrances are so close together, bees do not properly mark their locations. When the weather outside warms up, and the sun shines, and bees are out flying, they are apt to join the entrance of the strongest flyers. This makes the weak weaker and the strong stronger. We have observed the same tendency with the quadruple winter cases, but not to the same degree.

Size of Entrances During Winter

THIS question is frequently asked. According to Dr. Phillips they should be contracted down during chilly weather, and still more during very cold weather. When

we raised the question as to whether these smaller entrances will not clog up with dead bees he came back by saying that, if the packing was ample, bees would not die on the bottom and lie there; that the hive would be warm enough so that the others could carry the dead out and dump them in front.

It has been our practice to contract the entrances at our outyards, which we do not visit except at long intervals, to 6 by $\frac{1}{4}$ inch. Then once and sometimes twice during the winter we send a man to the yards to rake out any dead bees at the entrance passageways. While we have been wintering in these large winter cases with six inches of packing all around, and ten inches on top, we find a good many dead bees in the entrance passageways.

Are Your Bees Packed for Winter?

IT will not be many days hence in the northern states when there will be snow with cold and piercing weather. The question is often put, "Have you put your bees away for winter?" The cold raw winds in November sometimes do a colony more harm than zero weather later on. Dr. Phillips, of the Bureau of Entomology, reports that a high wind of moderate cold will cool off the interior of a hive more than a still air considerably below freezing. We have found the same thing true in our own yards. Colonies that are wintered outdoors, and are not packed, suffer considerably; and if there is any brood in the hive when the temperature suddenly drops, it may become chilled. Wherever it is practicable, colonies should be packed in the fall as early as possible. As long as any asters or other fall flowers are in bloom, bees that are to be placed indoors should be left out till all bloom is gone.

Right here, colonies packed outdoors in October, or, better yet, in September, will fare much better than those in single-walled hives, subject to frequent changes of temperature and high piercing winds—especially winds that blow up into the entrances.

Less and Not Less

THERE are fewer pages in this number of GLEANINGS than in former numbers, but not less reading matter. By restricting the advertising space as much as possible we are able to give GLEANINGS readers as much bee lore as usual in fewer pages. We do not expect this size of GLEANINGS to be permanent; but in the exigency of a very much overworked printing-plant we shall

contract advertising space and diminish the bulk of GLEANINGS, providing this can be done without injustice to our readers. So it happens that there is "less and not less" in GLEANINGS this number, and the same condition is likely to prevail in the next several numbers of our magazine.

Honey-market Conditions and Prices

THERE is not much new to report except that the market seems to be improving some. In some localities, it seems to be fully as high as last year. In other localities the price is a little easier. The reader is referred to our honey-market quotations in this and previous issues.

While in the extreme West the season was far below expectations, and while the yield was a low average in Colorado in the early part of the year, conditions improved later on. The shortage of honey in Montana, Idaho, California, and particularly in the Imperial Valley, was enough to pull down the general average of the West. Had there not been a large yield of honey in the East, particularly in the clover regions, prices would have materially stiffened over those of last year.

As is usual, beekeepers are making the mistake of shipping their honey late. Carloads of comb honey are yet to be sent by rail. The danger of breakage when the weather is cold or freezing, the danger of starting initial granulation, the danger of breaking the market when all of these shipments are unloaded at once, and unexpected, are things that cannot be and should not be overlooked. Buyers remembering past years' experience, particularly that of last year, become disgusted when these late shipments pour in when they should have come in soon after the crop was taken off the hives.

Importance of Windbreaks for Good Wintering

WE have already, in times past, spoken of the importance of windbreaks for protecting bees wintered outdoors. If we had to choose between windbreaks and single-walled hives or double-walled hives out in the open, we would unhesitatingly choose the former. We have learned here and about Medina that unless we have a screen of woods, hills, or farm buildings, we are likely to have some heavy losses, even though the bees are packed in double-walled hives. Time and time again we have noticed that colonies that are exposed to a sweeping wind will suffer very much more than colo-

nies in the same yard that are protected by bushes, trees, buildings, or anything that shuts off piercing winds.

Those who are expecting to winter their bees outdoors should not forget the importance of a good location for the beeyard. A windbreak is almost as important in early spring and late fall as during winter. In the spring, colonies well protected will fly out to gather some pollen or nectar, while those exposed to high winds will not venture out. We have seen many instances of this in several of our yards. One year in particular the bees of the out-apiary on the side hill, screened on the north, would work on apple-bloom while those on top of the bluff, exposed to the winds, stayed indoors. Those protected built up faster than those exposed.

Quadruple Winter Cases vs. Cellars

THERE seems to be quite a strong movement in Canada toward wintering colonies in quadruple winter cases with a liberal amount of packing rather than to put the bees in a cellar. It is claimed that the outdoor bees are ready for a harvest before those wintered in a cellar. This is because bees outdoors start brood-rearing earlier; and early breeding is important providing the brood-nest is well protected by packing.

The time was when cellar wintering in Canada was almost universal. While there are some who still prefer to winter indoors, the beemen of Canada now seem to be working over toward the outdoor plan.

What is good for Canada may be equally good for those of us who are located south of the Great Lakes. While cellar wintering has never been practiced to any great extent in most localities in Ohio, Indiana, Illinois, yet the tendency today is more and more toward the outdoor plan. The ideal beecellars are few and far between. If the temperature in a cellar can be uniform at about 45 or 50, and the atmosphere pure, bees will winter well; but if the temperature is variable, going down to freezing and at other times going up to 60 or 70, as it does in many cellars, the bees will become uneasy, and half or two-thirds of them will have dysentery before spring. On the other hand, when bees are well housed outdoors, variations in temperature do not affect them so adversely. Even if they do start brood-rearing, the very fact that they are able to get a flight every now and then enables them to keep themselves clean. If cellared bees become uneasy, they will worry themselves to death or contract dysentery.

The fact that the tendency is toward

outdoor wintering in very cold climates as well as in the milder climates is rather interesting, going to show that beginners and sometimes experienced beekeepers will do well to follow the example of the large producer.

How Far South Should Winter Packing be Used?

FOR the last thirty years it has not been considered necessary to use double-walled hives or winter packing for colonies located on or below the Ohio River. Dr. Phillips, of the Bureau of Entomology, made the remark this summer that the winter experiments conducted by the Bureau had led him to believe that some beekeepers in the South might with profit use winter packing. From some experiments with our Virginia bees, it is apparent that colonies that were packed were in better condition than the same-sized colonies in single-walled hives.

When we say "packed" we do not mean that the colonies must be in factory-made double-walled hives. Bees can be packed in straw or leaves, with a roof of boards or roofing paper, very cheaply.

If there is any advantage in packing colonies early in October and November in the northern states, would there not be some gain in protecting bees in the Southland where the temperature goes down to freezing and below, and where it is chilly and damp off and on for at least two or three months? While it is true that bees *can* fly in many of these localities every day, that very flying wears them out, and if they are not taken care of properly they will soon die. In a warmly packed hive, on the other hand, they will consume less stores and the brood will be protected when chilly bad weather comes on.

We are well aware that some of our friends in the South will poke fun both at us and Dr. Phillips; but if they will try out winter packing they may find occasion to change their minds.

Spraying vs. Beekeeping

PROBABLY we may look for an ever increasing array of parasites and diseases, not only on our fruit-trees but on the shade-trees. The forces in nature that tend to tear down are always on the increase, and constant vigilance is necessary to combat them. This means that the beekeeper must realize that spraying of shade-trees as well as of fruit-trees is bound to increase, and the probabilities are that bee-poisoning resulting from spraying is likely to become

some day a serious matter in many localities just as it is now in a few localities.

Dr. Burton N. Gates, in charge of apiculture at the Massachusetts Agricultural College, and state inspector of bees for Massachusetts, has made a compilation of the known instances of alleged poisoning, with some recommendations for relief, in a bulletin on the subject, No. 10A, under the Massachusetts State Board of Agriculture. We believe this is the best and most authoritative statement on the spraying situation that has yet appeared.

Dr. Gates gives numerous instances of poisoning that have come under his own observation, and also takes from GLEANINGS and other bee-journals similar reports from other states. A report from West Newton, under date of June 16, 1915, is as follows: "Each morning there are many bees, sometimes 200 or more, on the ground, unable to fly, but trembling around until they die." Another from Middleboro: "The bees come home with white lead on their backs. In the morning you can see a quart of bees on the ground in front of their hives."

The poison is not only in the nectar, but in the pollen. Some peculiar features of the situation, as pointed out on page 18, is that certain colonies in an apiary may be affected, while others, apparently, are not. One beekeeper reporting for his locality says perhaps one apiary in ten is doing well.

The remedial measures mentioned on pages 18 and 19 are as follows:

"1. Legislation, which shall control spraying practices, overcome the spraying of blossoming trees, license contracting spraymen, and limit the indiscriminate, injudicious, and unnecessary use of poisons; the correction of mistaken state and municipal spraying practices.

"2. Educational campaign, which shall correctly inform users of spray poisons and reveal the errors and fallacies in current spraying practices; which shall promote the welfare of beekeepers.

"3. Co-operation of the manufacturer and distributor of spraying materials, compounds, and apparatus might be enlisted, to the end of furthering the educational campaign for sane spraying practices and the protection of bees.

"4. Development of spraying compounds which shall be repellant to bees. This, at the writer's suggestion several years ago, attracted the attention of scientists. It is hoped that benefits will result, yet it must be remembered that such experimentation is necessarily of slow progress."

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



The British Bee Journal, p. 256, suggests as a proper wholesale price for honey of first quality, 24 cents per section, and 16 to 17 cents a pound for extracted. Doesn't that compensate for the smaller yield they get in England?

J. L. BYER considers ridiculous the large entrance advocated by many, p. 909. Now that's ridiculous of you, J. L., to talk that way without telling what harm comes from it. I don't know whether you would class my entrance of 24 square inches as too large; but, honest Injun, wouldn't you rather have that than the $1\frac{1}{2}$ square inches you tell about?

M. S. PHILLIPS says if you want to find out whether a nucleus has a virgin, don't give it unsealed brood, for then it will kill the virgin and start cells. Take a frame of *sealed* brood, pin on the middle a *sealed* queen-cell, and put it in the middle of the brood-nest. If any kind of queen is present, you will find the cell destroyed in a few hours. This looks like a valuable hint. [Yes; but if one doesn't have a sealed queen-cell what is he to do?—ED.]

JAMES A. STONE says he has no trouble in cleaning out the groove when combs have been cut out of a frame with groove and wedge in top-bar. Take an old-time three-pronged table-fork; cut one of the outside prongs off about $\frac{1}{4}$ -inch; turn both outside prongs up like sled-runners, then you can plow the comb or whatever is in the groove clean out; remove the wedge and place it in the groove to push the tongue back, and let it remain a few minutes, when you can insert the foundation as easily as at first.

"In supering, it is rare that a season is so favorable that lifting supers and placing empties beneath is advisable," says Wesley Foster, Sept. 1, p. 781. Locality, again? If there were no other objection, here, to giving supers above only, a sufficient objection is that such supers may have sealed sections in center with raw foundation surrounding, while, placed, below, all but the corner sections will be sealed alike. In a big flow here, if we don't find it advisable to add an empty *both* above and below, we think there's something wrong with the colony.

A DUMMY in order to get the first frame out of a hive more easily I earnestly advocated for years. A few months ago I went to figuring on it, and it wasn't long before I was convinced I had been wrong. With a dummy the outside layer of bees was less

than any of the inside layers, and surely the outside comb needed the greater protection. The outside comb sometimes had less brood than the others; with more bees to keep it warm, that might be bettered. I decided to test the matter fully, and, against the earnest protest of my assistant, left dummies out of a third of my hives during the season of 1916. For some reason the bees couldn't see the force of my figures and arguments. There was no increase in brood in outside combs. Unless extra time was taken to shove all the frames to the opposite side, taking out the first frame had to be done slowly to avoid killing bees—possibly a queen—and the bees were stirred up by it so it was hard to find the queen. When the frames were returned it took extra time to equalize the space at each side. Braec-combs made some trouble. Leave dummies out if you want to, but never again for me.

A. I. ROOT, you show good taste in liking milk out of the refrigerator with oatmeal and honey. I think I take a little more comfort by having in the evening *hot* milk with extracted clover honey, sometimes having in it bread made from whole-wheat flour that I ground myself. [My good friend, the above makes me glad several times. First, I am glad to know that you, like myself, are prolonging your life, probably because of simple living—milk and honey. In regard to the hot milk, whenever my digestion gets a little out of shape, say by being tempted to eat between meals or something like that, I too use hot milk. Sometimes I say to Mrs. Root, "Please let me have scalded milk, and have it hot, instead of cold milk, until I give further notice." The hot milk with toast soon gets me right again. And then, again, I am glad once more to find that you are cutting out a great lot of middlemen by making your whole-wheat flour yourself, and getting better flour than you can probably buy, even if you pay a big price for it in paper packages. By the way, doctor, I am going to feel awful lonesome if you die before I do; so please do not die just yet. A few days ago I had occasion to look over your book where it tells about how cheaply you lived on wheat away back in your schooldays. May God be praised that you are still with us, not only to live on wheat (and grind it *yourself*), but because you are able to give wise counsel to a great lot of "kids" who sadly need it.

P. S.—Say, doctor, do you still sing that grand old hymn, "The Rock that is higher than I"?—A. I. R.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



THE HONEY MARKET.

Local retailers are selling comb honey at 10 to 20 cts. per section. The higher price is secured for the fancy and No. 1 grades, and the lower price for the cull honey, of which the beekeepers have quite a supply that is dumped upon the local market. The culls bring from \$1.50 to \$2.25 per case, according to weight and amount of finish, the weight running from nine ounces up. The average weight is probably fifteen to seventeen pounds per case, with the weight of the case subtracted.

There is a growing demand for comb honey in bulk, and some beekeepers are disposing of their cull comb honey in that form. The 5-lb. and 10-lb. pails, and 5-gallon cans are the favorite packages. This bulk comb honey brings 10 to 11 cents per pound according to package in which it is packed.

The market on extracted honey is good, and the price is higher than one year ago. Alfalfa extracted honey brings 7 cents in small lots, and a little less where a carload is taken. This is the price paid producers. At some points where freight rates are high, sales have been made on the basis of 6 to 6½ cents per lb. The extracted honey is very fine in color and body this year, and the flavor is all that can be desired in alfalfa and sweet-clover honey.

The comb-honey market has been rather slow, and sales have not been made as rapidly as the honey was prepared for shipment by the beekeepers. Western-slope comb honey has been sold for \$2.20 and \$2.40 per case. Cars of eastern-slope honey have brought from \$2.75 to \$3.00 for the fancy grade so far.

Honey-crop conditions have improved in Colorado during the late flow, as this has been good in some parts of the state that had a poor summer honey-flow. During September considerable honey was stored in supers in the Arkansas Valley and portions of the western slope in Colorado. The comb-honey crop has not been sold; but considering the crop in the East, sales have been better than could be ordinarily expected. The middle West has taken large amounts of honey, cities of 15,000 population taking comb honey in car lots. Of course, some of this honey is distributed in surrounding territory; but the fact that honey has not increased in price as have other foods has made a great difference in demand.

The local sales of honey have been much larger than common, partially owing to the very large tourist trade. Parties visiting Colorado by auto from states to the east and south have bought honey freely to take home with them. Our county produced at least fifteen cars of honey, and half or more of it has been shipped out, and there is not to exceed five cars left at this date, Oct. 11.

WHY RETAIL AT SO LOW A PRICE?

Beekeepers are doing this more and more, and the practice is to be encouraged; but many beekeepers do not consider that it is advisable to charge a price high enough so that one can get paid for the additional work necessary. One beekeeper has been putting extracted honey up in 10-lb. friction-top pails, hauling it by auto for a hundred miles, and peddling it out from house to house at 75 cents per pail.

Another beekeeper advertises in his local paper to sell extracted honey at five cents a pound.

Now, this first beekeeper who is selling extracted honey at retail at 75 cts. for 10 lbs., has nice honey, and I have sold and am selling in the same territory cases of six 10-lb. pails to the grocers at \$7.50; and wholesale grocers are charging the retail grocers about \$8.00 for six 10-pound pails. It is not necessary, nor good business, to retail honey at less than carlot prices.

The retail grocers are the ones who sell the bulk of our honey crop; and if it were not for them we should have a hard time selling our crop. If we retail honey, and compete with them, let us hold up the price any way; and when we sell to retailers, sell at a price sufficient to give a fair profit to them and ourselves also.

Suppose extracted honey is worth 7 cents wholesale in 60-lb. cans. When retailed in smaller packages it ought to bring not less than the following prices:

Six 10-lb. pails, \$7.00; one for \$1.60; 12 5-lb. pails, \$7.40; one for 90 cts.; 24 2½-lb. cans, \$8.00; one for 35 cts.; 12 pints (glass), \$2.40; one for 25 cts.

Some Colorado dealers are selling for more than these prices, and a few for less.

Colonies slow about entering the supers, and strong on clustering out, may be driven into the supers by raising the hive from the bottom-board with small blocks. This cools off the lower part of the hive, gives ventilation, and forces the bees to seek the warmer part of the hive to store honey and build comb.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



CONNIVINGS OF HONEY-BUYERS.

In the *Western Honey Bee* for October appears what purports to be a confidential conversation with a buyer representing a Los Angeles firm. The conversation was given to show how the buyers connived to fix the price on honey for the season, and to describe the method used. Let me quote: "As the honey season advances, and some honey begins to be reported in the apiaries, our firm, or one of the others, selects a certain beekeeper, not one of the large producers, but one who usually has from two to five tons to sell, and always one who *has* to sell." Continuing, the writer says the buyer drives the sharpest bargain possible, and in twenty-four hours every buyer on the coast knows of the sale and the price paid, thus establishing a precedent. I will not comment on the plausibility of the story, or how such confidential matter has found its way into print; but it seems to me the buyer, instead of going to all of this trouble, could find a better lead by using one of their contracts in which the beekeeper contracts a crop that is only in prospect, at a figure too small to display good judgment. I know of at least two beekeepers who contracted their honey this year, before one drop of it was gathered, at 5 cts. a pound. The first offers for the 1916 crop were around six cents. Who was to blame?

THAT FULL-PAGE HONEY AD.

When I saw the full-page "Airline" ad. in the *Ladies' Home Journal* for October, I meditated over its influence on the readers, millions of them. It occurred to me that we get just about what we pay for. Here is an advertisement that surpasses anything of its kind that has ever been undertaken. Such extensive advertising will bring results; and while the advertisers will reap a benefit, a demand will be created for honey thru such advertising that will find its way to the producer for a supply to fill the demand. The entire beekeeping fraternity will be benefited directly or indirectly, while the bill will be paid by one firm. But, as I was saying, we get just what we pay for; so if we pay one and a half dollars into an association we shall not get to exceed that amount in return. If it were possible for beekeepers to form an organization that could establish a brand and keep a stock on hand to fill a demand created by extensive advertising, such as the one just mentioned, we would get returns in propor-

tion. But that will never be done by the beekeepers, for they will furnish neither cash nor honey for such an enterprise. So let us take off our hats to "Airline" and wish it all the success possible, for I predict it will be one of the greatest factors in the honey market of the country in a few years. In it there is offered a continual supply, of a definite color and average flavor, which, in time, will make it a table watchword.

SHALL WE SAVE THE LAYING-WORKER COLONIES?

On pages 865, Sept. 15, Mr. E. S. Miles advises saving layer-worker colonies. Like Dr. Miller, I believe the best cure is to break up the colony. To my mind it is impractical to save such a colony. We may add brood and bees, eventually getting a queen to laying, but this is done at the expense of other colonies, and virtually amounts to building a new colony. The best way I know to relieve a laying-worker condition is to give such a colony a frame of brood containing eggs, then exchange stands with a strong colony. The bees from the strong colony will soon put an end to the laying workers, and raise a queen.

This fall I had about fifteen colonies that went queenless by not having close enough attention after extensive requeening operations. There was a good supply of bees; but all except two had degenerated into laying-worker colonies. It was to my advantage to save them at this time of the year if possible. Ordinarily I would have doubled them up with other colonies; but as it happened this time I had a number of two or three frame nucleus colonies, containing a queen and a small amount of bees that could not possibly winter without the addition of brood. In trying to introduce the queens into the laying-worker colonies by the bee method I found the supply of bees was too small to protect the queen, so I lost several queens where the entire nuclei were set into the laying-worker colony. I finally succeeded by taking the laying-worker colony off a distance and shaking the bees off the combs on to the ground. I then set my nucleus into the fertile-worker hive which was given the place of a strong colony, while the strong colony was given the place of the laying-worker colony. The results were entirely satisfactory, and, thanks to the bluecurl flow that followed for three or four weeks, all came up to winter with a good force of bees. But in this process I do not figure that I saved the laying-worker colonies.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



THE HONEY MARKET.

The honey market in Ontario is still better than when I wrote for the October issue. The big crop seems to have disappeared, and at this early date, October 13, I find it impossible to buy any honey at a price that would let me out, unless I sold it locally at a figure higher than I obtained for my own crop. High prices of other food products, good wages among the masses, and an unusually fine quality of honey, seem to be the factors that have brought about such conditions. At any rate, contrary to the usual state of affairs, the late market will this year be just as good as or better than the early, and I have not the least fear but that all the honey will be cleaned up before next year's crop comes on the market; in fact, I have my doubts as to much of the crop being available in a wholesale way after the first of the year.

WHY WE FEED SUGAR.

On page 932, Oct. 1, A. C. Miller chaffs Mr. Crane for admitting that he has fed "tons and tons of sugar syrup," and incidentally claims that such practice is not necessary if "improved methods" are used. Being in the same boat, so to speak, as Mr. Crane, so far as the feeding question is concerned, we naturally would welcome some good plan that would help us to do away with the feeding problem, and at the same time give us good results in wintering. With this desire in my mind, let me briefly outline conditions as we find them here in our home district. Our main flow is from alsike clover; and at the conclusion of that flow, in about four years out of five we find brood-nests with but little honey in them, the most of the combs being filled with brood. After taking off the clover honey, super combs are returned to the hives, if for no other reason than to protect them from the moths; for with thousands of such combs it surely is a job to keep them from being ruined if not given to the bees to be cared for. About Aug. 1 our buckwheat flow starts; and while one super would as a rule take care of all the surplus we get from that source in our district, yet we hesitate to reduce them to that number by reason of the moth nuisance as before outlined. Even with two or more supers on a hive, with hives as large as the ten-frame Jumbo, sufficient honey will go into brood-nests at this time for winter stores *if the flow is not heavy*. With a hive of the eight-frame L. capacity run for extracted honey,

feeding will nearly always be necessary. With a good flow from buckwheat—say 40 to 60 pounds in our locality—even the Jumbo hives will need feeding after supers are off.

This year has been an exception to much of the foregoing; for during the last ten days of our clover flow, which lasted longer than usual, queens, whether young or old, let up in brood-rearing, and the majority of the hives were jammed with clover honey, even when abundant super room was still present. With a very light buckwheat flow, brood-rearing was not increased to the same extent as in other years, and this clover honey was left in the brood-nests so that little feeding is necessary. This is one year out of the five referred to, and in no way clears up the question as to what to do to avoid feeding in the other four years.

Would Mr. Miller advise keeping sealed combs of clover honey when honey is the price it is here in Ontario? In some seasons the keeping of such honey would mean the whole crop. Would he take off the supers during the buckwheat flow? and if so, what would he do with, say, some 15 or 20 thousand such combs, in order to protect them from the moths? In any locality where there is a fall flow as late as the middle of September the feeding problem is solved at once; for, no matter whether supers are on hives or not, honey coming in at that date will, to a great extent, go into brood-nests, as queens always slack up brood-rearing at that season. We have learned this much by establishing the yard up north, as there we have aster and golden-rod in September, and feeding is never such a big job as we often run up against here in York Co., where August sees the last of our honey-flow.

THE CONDITION OF THE CLOVERS.

Since sending in my last batch of Notes, refreshing showers have visited many sections of Ontario, and once more the grass is looking green. But conditions as to the crop of clover for next year have changed but little, as alsike grown for seed is our main source of honey here in York Co.; and the long-continued drouth, coupled with the extreme heat of late July and early August, played havoc with the freshly seeded areas, and the acreage of alsike for next year will be very small. Judging by conditions at our north yard in Simcoe Co., where more white clover grows than here in our home section, the white clover seems to have stood the drouth better than expected.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



The Tennessee State Fair came very near having the State Guard as the main attraction this year, for we had two regiments camped on the fairgrounds nearly all summer. Thousands of visitors went out there every week, especially on Sundays, when the soldiers were reviewed and paraded around the race-track, with regimental bands playing, flags flying, lots of saluting, and a general thrilly, military atmosphere. One of the Drane brothers, of Memphis, and Mr. Wyant (beekeeping soldiers all) took us down into a wonderful trench built out on the grounds by Company B, 1st Regiment. The bomb-proof part was cosy enough to play house in; but one turns sick thinking of trenches these days. They also escorted us to, *not into*, the barb-wire entanglements beyond. Orders from Washington sent the troops down to the border just two or three days before the fair opened. The bee and honey exhibits were in the building formerly containing the guard-house where the prisoners were kept.

While there were not many exhibitors, there were some right good-looking and interesting exhibits. Of course people passing by are always attracted by the live bees, and eager to find the queen (or, about as often, the king). Mr. Buchanan's "Home, Sweet Home," made by a clever arrangement of comb honey in sections and full-size frames, made quite a hit.

From Forsythe County, North Carolina, come reports of very poor crops this year. Some yards yielded no surplus at all, others averaging twenty or thirty pounds. "Weak colonies," one correspondent writes, "have died and hunger-swarmed practically all the year. A light flow is now coming in from several plants of the *Composite* family. Unless aster yields well, our winter loss will be 50 per cent." Judging from present conditions here in Tennessee, I suspect aster has come nobly to the rescue.

THE GREAT VARIATIONS IN TEMPERATURE.

It seems to me as tho these fall months, with their wide variation between the maximum and minimum daily temperature, must be rather hard on the bees. They have not yet formed into compact winter cluster, and to a great extent even have eggs and young brood, so they are maintaining high temperatures in the brood-nest, around 93 and 95 degrees, as I understand. In the daytime

it gets warm enough so they are flying, working on aster and goldenrod or some other fall flow, then at night down drops the outer temperature so low that it surely must require a considerable expenditure of energy to maintain the necessary warmth. One day in September I noticed the temperature in places in Utah, Montana, and British Columbia, varying 34 degrees between maximum and minimum, and one report from Colorado showed a variation of 36 degrees, from 74 down to 38. Even Nashville that day slid from 73 to 50, a difference of 23 degrees. And none of these are anything rare or unusual. In the summer there is a daily variation, yet it is always fairly warm. In the winter there is a variation, yet it is always fairly cold; but in these transitional months it seesaws up and down from summer temperature to winter temperature in a way that would seem to be rather disconcerting to the bees.

Mr. J. F. Archdekin, urging co-operation for beekeepers, especially in the matter of selling honey, says, page 658, "Co-operation has always been a distinguishing feature of the human race." And so it has, in limited times and places. But it is certain that, so far as we know, co-operation has *always* been a distinguishing feature of the hive. And some day (slowly, perhaps, but surely) beekeepers are going to show themselves as capable of intelligent co-operation as the bees with which they work.

Of course the reason a great many beekeepers seem indifferent to such suggestions is the simple fact that the marketing of their crop has not yet become a problem for them. They have good local markets and not much competition, and so do not feel the necessity of working hand in hand with other producers.

Instinct.

I wonder when these bees of ours
Learned the things they know.
Some countless ages back perhaps?
Or just some weeks ago?

I wonder where they learned them all.
In far-off, ancient dells
Of fig and olive? Or right here
Within their waxen cells?

I wonder, yet I cannot tell,
As back and forth they go,
When or where or how they learned—
I only know they know.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



DISTURBING BEES IN WINTER.

A correspondent writes that it will soon be time for the bees to go into winter quarters, and wishes to know if it will do any harm for him to look at them occasionally during their winter nap. He says an old beekeeper told him that he examined the bees at all times of the year, and in all kinds of weather, and that it did no harm.

I am well aware from past experience how any one having a bad case of the "bee fever" can be amused by looking at them during winter; but from that same past experience I think it far better to amuse ourselves in some other way. During the spring and summer, when the bees are able to fly, a little disturbance is not injurious, and at certain times a manipulation of the hives and combs may be made very profitable, especially if it can be done when there are no robber bees prowling about to pounce upon their stores. If the apiarist is thoroly informed on the condition of each colony of bees as to their needs he can better supply them, in time to be of the most service. But in cold weather the novice cannot be too much warned against the ill effects of a disturbance of colonies, whether they are in the cellar or in the open air. Bees at such times are closely clustered together in as compact a shape as the combs allow.

If a hive is carefully opened it will be noticed that the bees' heads, so far as may be, are all turned toward the center, and that they move but little, all their efforts seemingly tending to gain access to the warmest spot. If outdoors the disturbance causes them to "break the cluster" to ascertain and drive off the danger. If the weather is around the zero mark many will become numb, and perish before the cluster can be properly formed again. If in the cellar, the disturbance may cause more trouble, as the bees will become more alert to drive off intruders, and many fly out and get lost on the cellar bottom. And if the disturbance is long continued, the bees will fill themselves with honey, and in turn feed the queen, which will result in premature breeding, bee diarrhea, and death. Thus quietude is almost indispensable.

If the novice must satisfy his curiosity he must do it at the peril of the bees. If food for each colony has not been supplied before the bees go into winter quarters, it is a difficult thing to supply this now without risk. The proper time to feed is as soon as the last flowers which give a sur-

plus have gone out of bloom—during the last half of September and the first half of October, here in the northern states. Then frequent disturbance causes the bees to become fearful that they may be driven from their stores, consequently they fill themselves with honey to overloading, and then, when the disturbance ceases, they unload it back into the cells again. But this filling with honey and putting it back in the cells brings on an excitement which has caused them to consume more than they otherwise would, and there is consequently overloading of the intestines. And as bees are so cleanly that they will not discharge the feces in the hive unless they are positively obliged to, their anxiety for a chance to get into the open air causes them to break the cluster and raise the temperature in the hive to summer heat, which makes brood-rearing almost a necessity, even in mid-winter, the result of which is a worn-out vitality, which gives what is called "spring dwindling," so that the old bees nearly all perish before the bees emerging from the brood become plentiful and strong enough to build up.

There are times in winter when it will well pay to look after the bees that are on their summer stands. It is when a warm day comes, in which the temperature rises to from 45 to 60 degrees in the shade, with no wind, or nothing stronger than a breeze. If the hives are surrounded with snow, it should be shoveled away and the entrances to the hive cleared of dead bees so that the bees can have a flight and empty themselves of their feces. Some even recommend that, if the bees are slow about coming out, or if the hive is in the shade, the hive be pounded on gently, so that the bees may become aware of the warm atmosphere outside. But I have found more trouble from the bees coming out and becoming chilled on the snow with the mercury standing at from 35 to 40 degrees in the shade, when the sun is shining brightly, than in their staying inactive when it was warm enough for them to fly safely. At times when bees come out and are lost on the snow it is best to shade the entrances by setting up a board in front of each hive, or by sweeping snow against the front.

If any colonies are known to be lacking in stores, such warm days in winter are just the time to supply them by putting in the number of combs of sealed honey which will be required. This is far better than to try to feed syrup or honey in cold weather.

GENERAL CORRESPONDENCE

AS GLIMPSED THROUGH THE CAMERA

A New Wrinkle in Wax Rendering

BY H. H. ROOT

In rendering wax with what is often called the unheated press the idea suggested itself to me of introducing a small jet of steam into the can holding the water and wax and the refuse under pressure somewhat after the scheme described by E. F. Atwater, p. 138, March 1, 1909, but I decided that it would not be feasible without access to a good head of steam from a large boiler. Later on I thought of it again, and, as before, finally came to the conclusion

the vertical cleats around the side of the can and extends over toward the center between two of the horizontal cleats.

I dipped a couple of gallons of melted comb and water into the press, and immediately I heard a great gurgling and sputtering as the hot water and wax surrounded the end of the pipe from which steam was blowing. While the pressure was being applied the water and wax kept up a gentle boiling—an ideal condition. This was some-

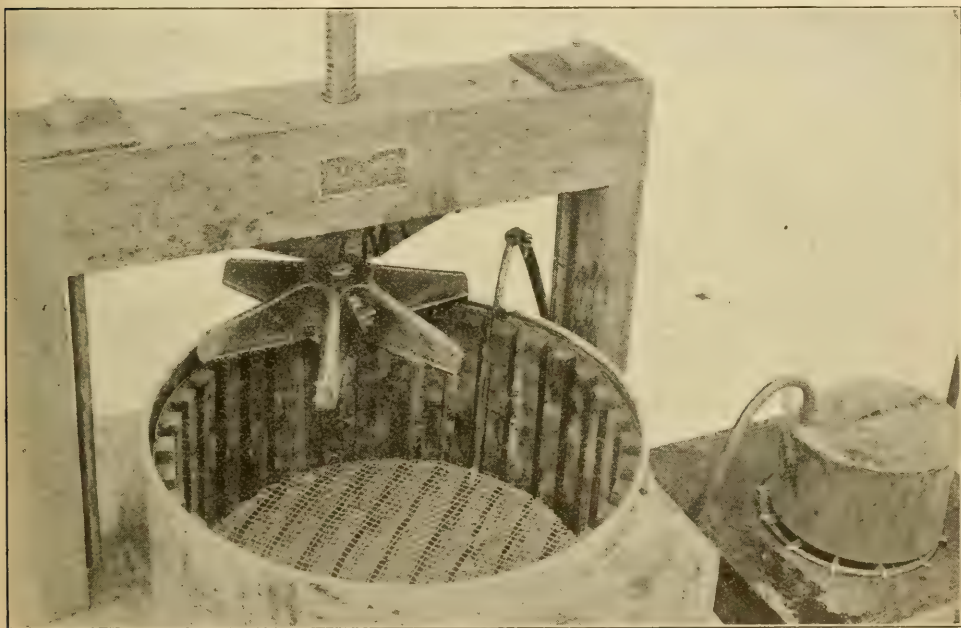


FIG. 1.—Steam from a small boiler introduced between the slats in a wax-press can. The water and wax keep up a continual slow boiling, insuring constant circulation.

thing, even if it did work, having an extra stove around to bother with would hardly pay for any advantage that the plan might present. One day, however, I resolved to try it, still having but little faith.

I took a steam-knife outfit, disconnected the knife, and put on the end of the hose a piece of $\frac{1}{4}$ -inch copper tubing, about 14 inches long, with a right-angle bend 5 or 6 inches from the bottom, and a long curve at the other end. This I applied to the wax-press can, as shown in Fig. 1. As will be noted, the pipe goes down between two of

thing I had not thought of, my idea having been only to prevent the water and wax from chilling. The gentle circulation of the contents of the can is really the principal point of advantage; for, no matter how long the pressure is kept on the slungum, nor how many times the screw is raised to allow the hot water to saturate the refuse again, the water keeps up this gentle boiling, so to speak, and the wax on top shows no tendency at all to cool off. The introduction of the steam adds so much to the efficiency of the method that I think there



F. G. 2.—Complete outfit for rendering wax. The two hollers on the stoves are for melting the combs in water. The water and wax in the press are kept hot and constantly circulating by a small jet of steam generated over the small stove.

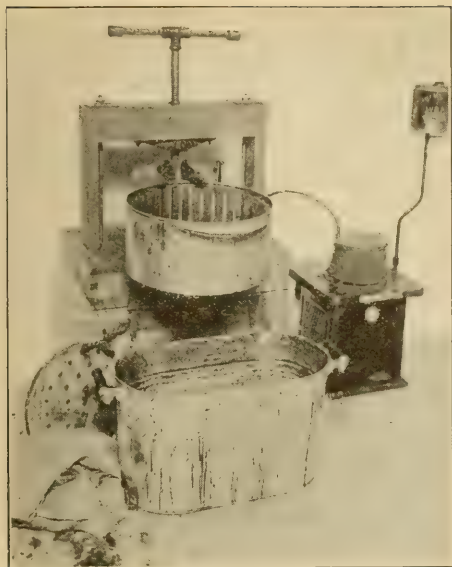


FIG. 3.—The press can pulled forward ready for filling.

is no need for running the refuse thru a second time. Some wax is left, I know; but a very small amount after all if the work is carefully done. In fact, I think the refuse is cleaner than I have ever seen it before, even after it has been run thru a press twice; and there is no hop-skip-and-jump, nor any need of covers or any other special precautions to prevent chilling of the wax in the press, so long as there is water in the boiler and gasoline in the tank of the single-burner stove.

SOME OF THE DETAILS OF RENDERING WAX.

It is some time since we gave in *GLEANNINGS* the process that we recommend for rendering wax. No doubt there are other plans just as good or better; but this plan, except for a very large production of wax, requires the least expenditure for equipment of any with which we are familiar.

Fig. 2 shows the complete outfit, including stove, press, steam-boiler, unmelted combs, the pressed refuse, etc.

A large cookstove with a top big enough to hold two good-sized wash-boilers is ideal; but frequently it is inconvenient to provide such a stove in a basement or outbuilding where the wax-rendering would be done. Two double-burner gasoline-stoves, one for each boiler, will do just as well therefore. Oil-stoves would answer the purpose all right for melting the combs, but would not be as satisfactory for generating steam in the small boiler as a gasoline-stove, owing to the difficulty usually in turning down the blue-flame oil-burner. The wash-boilers cannot be cleaned very easily; hence they

should be kept for this purpose only. Many prefer to use a large square tank of galvanized iron. Or a "feed cooker" may be used, costing anywhere from three to fifteen dollars.

The press should stand on a good solid box that is firmly anchored to the floor. It should be hinged in front so that it may be tipped over to run the hot water and wax into the can beneath. A large box or basket should be provided for the refuse after it is pressed.

When ready to begin work, one of the stoves should be lighted and a boiler of soft water put on to heat. If the water is very hard add a little vinegar. When the water is boiling throw in the old comb. It is astonishing the amount of comb that can be put into one boiler. Thirty-five to forty combs (half barrel) may be put in gradually, provided they are carefully pushed down with a paddle and stirred as they melt. When all the comb is in that the boiler will hold conveniently the cover should be put on and the mass allowed to cook thoroly. About this time the other stove should be lighted and another boiler of water put on. The burner under the steam-boiler should also be set going. It makes the "cheeses" more porous and really facilitates the work if a quantity of straw, preferably rye straw, cut up in two-inch lengths, is stirred in with the melted comb.

It is a mistake to begin pressing as soon as the comb is all melted up. The cooking process must be continued with frequent

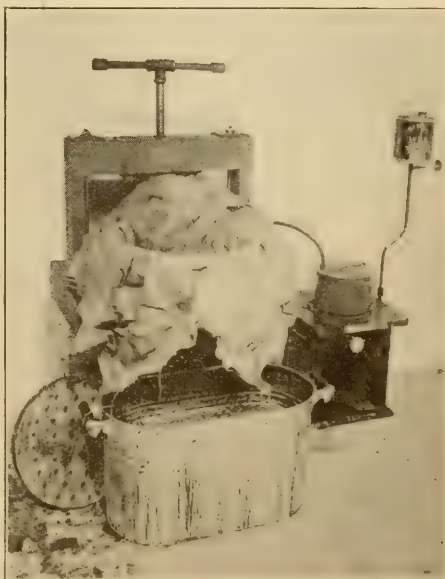


FIG. 4.—A large piece of stout burlap is the best material to use for holding the melted comb.

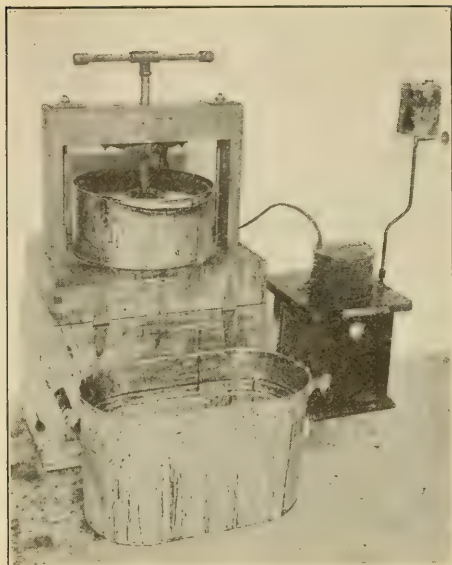


FIG. 5.—Applying the pressure. The wax rises to the top of the water. As much time may be given to the pressing as desired—no danger of chilling, because of the jet of steam.

stirrings until the contents of the boiler is reduced to a steaming mushy mass. There must be no lumps or hard chunks.

When the contents of the first boiler is ready for pressing and the steam begins to issue from the pipe in the bottom of the press-can, pull the can forward on the platform, holding it in position by means of the spider on the lower end of the screw resting on the top of the can, as in Fig. 3. Have ready a few pieces of good strong burlap, at least 40 inches square. Place one of these in the press-can; put the follower on top of it and throw a few dipperfuls of hot water from the other boiler into the can to heat thoroly all the parts. Pour this off and spread the burlap down into the can as in Fig. 4. Dip about two gallons of the melted comb and water into the press and fold the burlap neatly over it, as carefully as tho you were tying up a package. This is very important; for if there are thick rolls of the cloth in any one part of the "cheese," other parts of the refuse will not receive as much pressure as needed. To fold the burlap over, fold the back edge over toward the front, being careful to get the sides straight, then push the front edge over on top of it; lastly, fold in the sides neatly. Place the cleated circular follower in position (down of course); push the can back exactly in the center of the platform, and run the screw down very slowly—Fig. 5.

At this time it may be necessary to turn

down the gasoline-burners under the first boiler in order that the contents may not get too hot; or, if it is on a stove, pull it over to the edge. Always use the utmost care to prevent the wax from slopping over. If it does, there is danger of having a serious fire. As soon as the water in the second boiler begins to boil, begin filling that with combs.

Always turn the screw down slowly. If it is run down rapidly before the liquid in the mass inside the burlap has time to squeeze out, the burlap and the contents inside are likely to squash up around the follower, interfering seriously with the escape of the water and wax. Turn the screw only when it turns easily. Of course, when it is clear down it may be turned tight; but there is really more danger in applying too much pressure than in not applying enough.

Sufficient water should have been dipped in with the comb so that the water and wax when the screw is clear down will just about submerge the iron spider on the end of the screw. It ought to take two or three minutes to get the screw clear down. When it is down about as far as it will go, release the pressure until the cast-iron follower is nearly out of the liquid; pull up on the rope handle of the wooden follower until it is free from the burlap, thus allowing the hot water to saturate the refuse again. After a minute or so apply the pressure slowly once more. This process should be repeated two or three times.

When the screw is finally down as far as it will go, place a wash-tub or a large can on the floor in front of the press and tip the



FIG. 6.—When the pressing process is completed the whole outfit is tipped up on its hinges to pour off the hot water and wax.

latter over, pouring all the water and wax out. Leave the press tipped over a few moments until all the wax drains out—Fig. 6.

When no more wax will drain out, tip the press back into its regular position and pour the hot water and wax into an empty can or barrel having a faucet at the bottom. If a barrel is used which is smaller at the top, the hot water must first be drawn off after the work is over, and the wax run into previously soaped molds to harden. It is more convenient to use an oval-shaped can or round can that is larger at the top, so that the wax may be left right in it to harden in one large cake. There is no difficulty in lifting the cake out, even tho it be 8 or 10 inches thick.

The idea of the faucet at the bottom is to permit drawing off the hot water, so that it may be used over and over again. There is no object in using fresh water each time; therefore when the first boiler is empty enough hot water may be drawn off from the supply-can to fill it half full again for a fresh lot of combs. When first starting out, it is a good plan to fill the boilers a little more than half full so that there will always be enough water for subsequent meltings.

If the work has been carefully done, when the screw is raised after the water and wax have been drained off, and the follower taken out, the "cheese" will be dry, comparatively speaking; and when it is dumped out into the box or basket, if a handful is taken up and pressed momentarily between the fingers, no great amount of wax will show. If only a very fine line of wax appears in the ridges between the fingers you can depend on it that you have done your work thoroly. It is hardly necessary

to say that it is convenient, if not absolutely necessary, to wear a pair of canvas gloves during the whole process; for when the burlap is shaken out the refuse is exceedingly hot—very much hotter than when a jet of steam is not introduced into the press-can. When shaking out the burlap, if the refuse does not shake out clean, lay the cloth over the box, inside down, and quickly rub it between the hands. This will dislodge the refuse still clinging. Now place the burlap over the press again and repeat the process. The same burlap should last for a dozen pressings. Each time you shake it out, however, look it over quickly to see if there is any sign of a weak spot or the beginning of a tear. If there is, discard it and use a new cloth.

A heavy rug or old sack should be thrown over the unheated can containing the supply of hot water and wax, poured in from the can under the press; for the more this heat can be saved the shorter time it will take to start a new boilerful of combs.

The final waste of wax by this process need not be over 3 per cent. There is no process that we know of that secures *all* the wax. The quality of wax from this press is the every best, needing only a little scraping on the bottom to be ready for market. The color is good, and there is no need of refining it afterward.

When diseased combs are rendered, especially those containing some honey, every precaution should be taken to prevent the bees from robbing. If the buildings can not be made bee-tight, the work must be done at night, and every tool and utensil used thoroly scalded. The refuse from the diseased combs should be burned, and the water which was used poured where the bees cannot possibly get access to it.

SOME OF THE THINGS I HAVE LEARNED IN THIRTY YEARS

BY N. SCHNETTLER

In 1885 I bought a colony of bees in the trunk of a tree; but having no success with them I bought two more colonies in Langstroth hives. I had three swarms that summer, and later on increased to 25 colonies.

After that I moved to Nebraska, and worked at the mason trade. I bought some bees and started in again, but without success, for there was so much wind, and in this particular locality where I was there was no white clover nor linden. In 1899 I decided to come back to the old Badger state.

In the spring of that year I bought a colony in a Langstroth hive for \$7.00.

Within seven years I had increased to 100 colonies. Now I have 225 colonies, and that is my limit; for during the last few years I have made only enough increase to atone for winter losses.

MY EQUIPMENT.

It is easy enough to control swarming if the bees are given sufficient room in time. I use the sectional or divisible-brood-chamber hive, so that I can interchange the upper and lower story. I use a flat cover overlaid with single-ply roofing-paper, which makes a waterproof cover that is inexpensive.

The bottom-board is made of matched



N. Schnettler's 225-colony apiary at Valders, Wis. up for winter losses.

Mr. Schnettler allows only enough increase to make

lumber with $\frac{3}{4}$ -inch strip on the sides and back for the hive to rest on, so that there is a $\frac{3}{4}$ -inch entrance. I have contracting-cleats to close this space to $\frac{3}{8}$ x 7, or $\frac{3}{8}$ x 2.

I use ten-frame hives because the brood-chambers will then always have some honey in the outside combs. When a super is taken off from an eight-frame hive, sometimes there is not a pound of honey left in the brood-chamber. This is why I prefer the larger hive.

MY CELLAR.

I keep all of my bees in a cellar during the winter, the dimensions of which are 13 x 41, and 7 feet high. The walls are stone, 2 ft. thick; 2x4's laid flat are spiked to the wall, the wall is then lathed and plastered, as is also the ceiling.

The floor is made of small cement tiles laid close together on ground made perfectly level. A one-inch coat of concrete over the tile makes the driest floor possible, and that is what the bees want—a dry and well-ventilated cellar.

For ventilation I have a six-inch galvanized pipe at each end of the cellar, the one on the east side coming down to within one foot from the floor, and the one on the west side about two feet from the ceiling. Each pipe runs up thru two elbows and on thru the roof, the one on the east side hav-

ing a half-cover that always turns with the wind, and the one on the west side with a windcatch that always faces the wind. I have the inlet pipe on the west side, because we have the most wind from that direction. By this plan the foul air is forced out on the east. I have a line 180 feet long running east and west that I use to carry the bees in and out of the cellar. I usually put them in during the latter part of November and take them out in the first part of April. I always bring them out in the night.

I produce extracted honey mostly. I have a power extractor, and it is fun to watch it run instead of being obliged to run it by hand.

The little Ford shown in the picture is my honey-peddler. There is nothing handier about an apiary than a little car for delivering honey. I made a platform that fits on top of the rear seat when the cushion is removed, extending over to the front seat. Two screws hold it in place. I can carry fifty 10-lb. pails or even the large cases of honey. When I receive a telephone order for honey I can deliver it very often inside of twenty minutes. I bought the car in 1913, and it runs better than when I first got it.

Valders, Wis.

NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

THE QUEEN-EXCLUDER.

The advance beekeeping has made in less than a century—in fact, the difference between ancient and up-to-date methods—is

chiefly due to four inventions—the movable frame, the extractor, comb foundation, and the queen-excluding board. The value and the merit of the three first inventions have

never been doubted; but the queen-excluder, from time to time in articles published in the German bee-journals, has been adversely criticised. Of course, such articles have always been answered by some who recognized the great benefit of its proper use.

THE QUEEN-EXCLUDER.

Some beekeepers called it a nuisance to the bees; others, an instrument of torture. This was said especially of the perforated zinc sheet excluder. Perhaps such criticism has stimulated the inventive genius. The list of bee-supplies was increased by a queen-excluder of "papier-maché" of any size, and by excluders entirely of wood. The wooden excluders are certainly handy for the bees where they are of suitable size; however, these are mostly very small, about 3 x 10 inches. I consider an excluding-board the size of the brood-nest just right.

We have now on the market two kinds of wire excluders. I consider them preferable to the zinc sheet excluders, altho I have only the latter in use.

SHEET ZINC EXCLUDERS.

These, after they are stamped, have on one side very sharp edges. Even a treatment with wire brushes does not remove all of them. It is these sharp edges that abrade the natural hair dress, and may inconvenience and injure the bees, some of which have to pass them heavily loaded. These sharp edges may easily be beveled off and made smooth by passing a suitable tool over the edge of each perforation. A few minutes suffices to bevel the edges of an eight or ten frame excluder.

DIPPING EXCLUDERS IN WAX.

After the perforations have been made smooth, the excluder might be further improved by dipping it in hot wax and hanging it up with a wire to let the surplus wax

drain off. The hotter the wax the thinner the coating. Such a wax-coated excluder pleases the bees much better than the bare metal. The coat of wax reduces the heat-conducting quality, and offers a better foothold for the bees.

ANOTHER WAY.

Besides using excluders there is still another way practiced among beekeepers here to prevent the queen from going into the super. This method is based on the assumption that the queen will not pass thru a long dark channel. The construction of some of the hives in use here can be readily adapted to this system. The brood-nest, by a permanent partition, is separated from the super. On the side of the entrance a long dark channel leads up to the upper story. It is said that the queen very rarely finds her way thru into the super. I have never used the plan, but know of a practical beekeeper who used it successfully for many years, and was pleased with it.

Quite a number of beekeepers have a hole only 3 to 4 inches in diameter; others, an opening about 4 by 10, covered with an excluder to communicate with the super. I am satisfied with an excluder nothing less than the size of the brood-nest.

IMPORTANCE OF THE EXCLUDER.

The weather and bee-pasture here are such that, without the excluder, the surplus would be so small (many seasons nothing), I would not keep bees for the honey they might bring, but would keep only a few colonies for the pleasure they would afford. The excluder for me serves not only to keep the queen from going up into the super, but also to limit the brood-rearing at the right time. This I consider essential to success in this locality.

Kempton, Bavaria, Germany.

ODDITIES OF CHINESE BEES

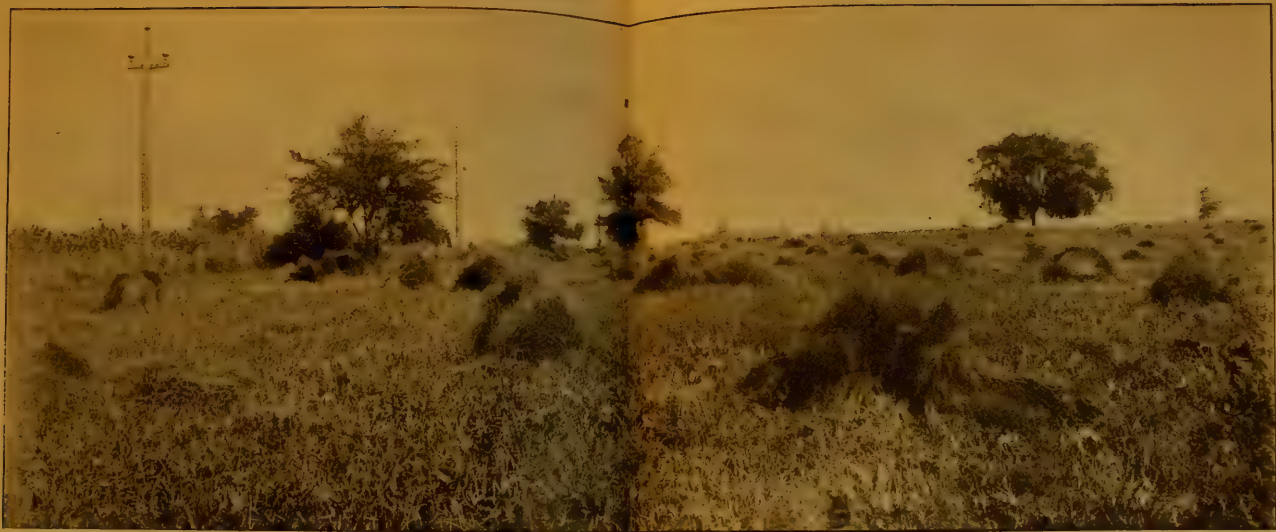
BY BRO. ROMAIN

The readers of GLEANINGS will be pleased to know that their esteemed paper is read in a country so far distant as China; they may also appreciate the good will of a remote subscriber who comes bringing his note of variety, talking of the Chinese bees, which may, perhaps, share in the oddity of their masters, the citizens of the newest republic.

In China we find the same bees as in Europe—the pure races excepted. They are nearly half yellow, but a little smaller than those in Europe—so much so that they rear "drones" in worker-cells of European

foundation. They show a great reluctance to build on that foundation and to go into the section. Like their masters, they don't trust innovations.

In the southeast of China (Foo-kien) there exists another kind of bees—black, hairy, and much bigger than common bees. The workers are as large as black European drones. I nearly succeeded in getting a colony of those dragon bees. Unfortunately the Chinaman killed them by smoking the box over the chimney of his hut. It was a great pity, for I believe those bees able to gather nectar from the kidney beans



In some parts of the United States this would be a rare sight—a field of sweet clover tied in bundles. The seed was sown here in Medina, last year, between the rows of corn, at the last cultivating in July.

(feves, phaselus), very abundant here in springtime. Common bees do not visit them; but bumblebees and pseudo-bees are foraging upon them all day.

The Chinese bees are very mild, and easy to manipulate. A big hive may be visited, frame by frame, without smoke and without getting a sting. One of their most interesting qualities is that they completely ignore the "propolis." Not a bit is to be found in their hives. This has, perhaps, a tendency to attract the moth which is, in fact, a terrible enemy of bees in China. But the manipulation of frames is thus very much simplified. Our spacers being staple-screws fixed in the top-bar, a single pull or push can move five or six frames at a time (39 cm. x20), (15¼x8 inches), somewhat like the English frame. There are no squares at the bottom, our hives not being intended to be moved. Of course the Chinese peasants do not know the modern frame hive. They make hives of whatever vessel comes into their hands—box, bamboo basket, old barrel,

earthen pot, old petroleum-box, bucket, pail. The preferred hive is the one with drawers without bottom, these being added underneath, and taken off from the top. By this ingenious system they sometimes obtain a very strong population, but with a large number of drones. The boxes are usually placed in front of the house, high up under the projecting roof. Often, also, they are placed inside the rooms with a bamboo tunnel across the wall, or the entrance is made by simply removing a brick. This last mode of location has the immense advantage of preserving bees during the winter, which is rather severe in the north of China, where a temperature of -25° Centigrade (7° Fahr.) is often registered during three months—December, January, February. Another but no less real advantage of this indoor location is to save boxes from thieves. Hives in the open field, as in Europe, would have 9 chances out of 10 not to see the end of their first season, the Chinese being robbers or marauders by instinct or necessity.

Hives are rather thinly scattered thruout China—a few here and there, except in certain districts in the West, where they are pretty numerous. In a wild state bees are found in trees, old walls, in the tombs, or, rather, in the space between the coffin and the masonry surrounding it. I must remark that in China the coffin, made of thick planks (sometimes 5 in.), is simply laid on the ground, and a brick wall constructed around it.

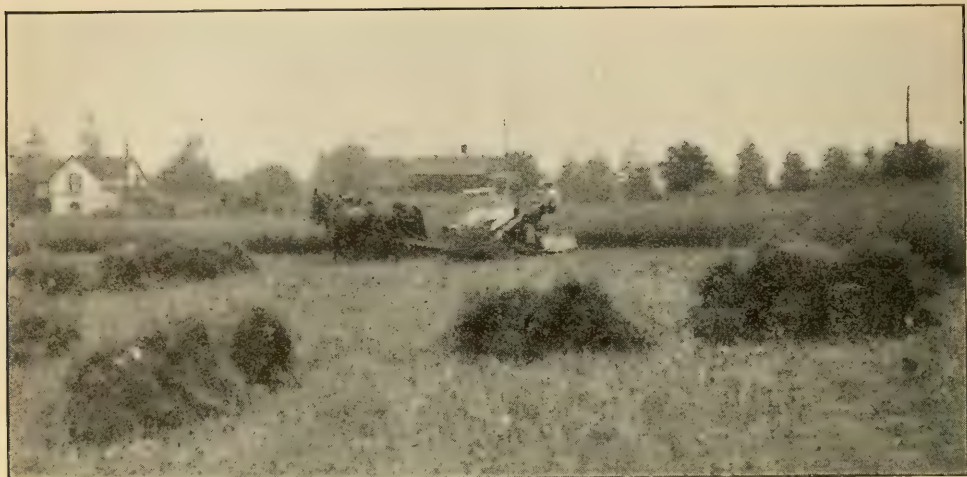
Many attempts have been made by Europeans and Japanese to introduce Italians in China, but, up to the present, with little success. A friend beekeeper, Mr. B., has bought more than 20 queens from America and Australia, but all were dead on arrival except three, which the bees quickly dispatched to their ancestors—out the foreigners!

Lately the Chinese government has manifested the intention of improving beekeeping; but years may pass before anything is done in practice. However, that culture or

industry would give very satisfactory results in many places.

In Shanghai, where, as a rule, the winters are very mild, -5° C. about (27° F.), strong colonies rear brood during the whole winter—a fact I have ascertained myself during the last two seasons. Wax scales are very abundant on the bottom-board. During the calm sunny days of November, December, and January, the bees gather a good deal of honey and pollen from the loquat-tree, just blooming in winter. The consequence is that many colonies may swarm even in March.

Unfortunately our flora is very poor, China having no meadows and no woods. Here are our best honey-plants: the colza, or rape; the coronilla; some fruit-trees; the wistaria, the Virginia creeper, the *cucurbitaceae*, the sunflower, cotton, the loquat. Of these the first only is abundant. The honey (very inferior in flavor to European or American honey) is used only as a remedy, and the quantity obtained from a box



Harvesting sweet clover at Medina

is only a few pounds. Ten pounds would be a rich harvest. Foreign honey is sold at 85 cts. to \$1.00 per pound.

The *British Bee Journal*, the *American Bee Journal*, *Gleanings*, and *Apiculture*, of Paris, are read and circulated in Shanghai,

where the beekeepers (a dozen already) seem to take a keen interest in beekeeping, and, no doubt, will improve that ever interesting branch of agriculture.

S. Francis Xavier College,
Shanghai, China.

SOME OF THE REASONS WHY BEEKEEPING IN CHINA IS DIFFICULT

BY C. A. PIERRON

The study of beekeeping is most certainly an interesting one. Practice is more attractive than a mere book knowledge of the subject; but both are what every beekeeper must aim at to be really worthy of the appellation. Some of the numerous things relating to a hive or to a colony of bees would be better understood by the opening of a bar-frame hive and by examining the contents of it in detail, while some other facts given in a book must be accepted in good faith. They are the result of the patient studies and researches of other people, and with little trouble these good points can be learned. Yet many passages are understood only at a second or third or further reading. But, notwithstanding the good will of the author, a book cannot solve all the difficulties arising before a beginner. Even that "king" of books on beekeeping, the A B C and X Y Z of Bee Culture, cannot enter into the fullest details of the subject; for if it did it would cease to be the most popular book among beekeepers on account of the superabundance of generally unnecessary explanations, or of facts applying to too few cases to be given in a book made for the greatest benefit of the brotherhood. It is, therefore, important for every bee-

keeper to set his brain to work to solve for himself a number of questions that may arise in his mind.

Here in China a beekeeping enthusiast with a "classic" on the subject at his disposal may be thrown into utter confusion capable of leading him to discouragement. One of the great drawbacks of beekeeping in this country arises from the fact that Chinese bees are smaller in size than the common bees. Accurate measurements taken from a certain number of native hives that had been cut thru gave the following measures which I compare with those found in books.

America or Europe	China
Thickness of worker combs, $\frac{7}{8}$ in.;	almost 13-16 in.
<i>Worker-cells</i> —	
Almost 5 to the inch;	about 5 $\frac{1}{2}$ cells to an inch
<i>Drone-cells</i> —	
About 4 to the inch;	about 4 $\frac{1}{2}$ cells to an inch
<i>Space between midribs</i> —	
1 $\frac{1}{2}$ in. to 1 $\frac{1}{4}$ in.;	13-16 in. to 1 $\frac{1}{4}$ in.

With such dimensions it is quite natural that a lot of statements asserted in books on beekeeping are found faulty for this country.

When starting the keeping of bees, tho finding these insects rather small we thought that what was true for Europe or America

could just as well be right for China, and acted on that principle. For example, wishing to transfer the combs from a native hive to a frame hive we fixed in frames some bits of combs that had been used for rearing drones, and which, when compared to the bases of cells on foundation, did not appear extraordinarily large. Of course the following year we had a fine crop of drones instead of honey.

Foundation when given to bees in spring-time was readily accepted; but was with difficulty taken to later in the year. The explanation of this is easy. In spring the bees working as always for the development of the race, and therefore requiring drones as well as workers, were willing to draw out foundation which allowed the rearing of drone brood preparatory to the rearing of queens at the approach of swarming time. Later the swarming impulse leaves them as the honey season nears its end, and the bees do not want drones any longer, but workers only, for they feel that the existence of the colony depends on the number of workers. At such a time foundation with bases too large for them to build worker cells on was hardly drawn out, tho inserted in the middle of the brood-nest, and the remainder of the hive was quite filled with brood and honey.

This having been considered, certain facts which at first seemed to me almost incredible became easy problems to solve. In 1912 we had given some foundation to draw out to a swarm whose queen was removed some time afterward; and tho to us the cells appeared like fine worker-cells, and

that worker brood was reared in them the remainder of the year, yet the following spring we had frames perfectly filled with drone brood. We thought that, on account of the period of queenlessness, the bees had built drone-cells, and gave them some other foundation to draw out; but the result was the same—viz., worker brood that year and drones in the same cells the following spring. We had a like success every time we tried the experiment.

To rear worker brood the bees partly closed the openings of the cells, leaving only a small round opening about the size of one of their own worker-cells. In a neighbor's hive I saw another thing which interested me much. In summer time, during the spell of rest forced upon the bees by the absence of nectar-secreting flowers, his bees busied themselves conscientiously by biting off almost to the top-bars the beautiful combs they had built some time before on comb foundation, and set to work to afford their future sisters quarters better adapted to their requirements. A pretty common thing, will veterans say? When the bee has nothing to do outside it keeps inside doing some mischief. Yes, I know bees do sometimes bite off the bottom of an old comb, and, may be, at the approach of winter, of a new one too; but that is nothing compared to a regular pulling-down of the house to build new lodgings.

Another beekeeper, who had ordered foundation and frame hives from France, complained bitterly to one of my acquaintances that Chinese bees were not willing to accept European civilization. "They won't



Thrashing the sweet clover.

build on foundation," he said, "and won't keep to the frames, but must also build between them."

This last fault was not an attraction for him. His frames were spaced $1\frac{1}{2}$ in. apart from center to center. No wonder, then, that additional combs are built, since, with frames only $1\frac{3}{8}$ in. from center to center, I saw additional combs being built. It would be still worse with frames spaced $1\frac{5}{8}$ in., as is given sometimes in books. It is true that this large spacing is for wintering; but it happens that bees build combs even at the end of October and in the beginning of March. The result of this spacing, too wide for the bees of this country, is what can be expected. In some hives the combs cannot be separated any more than if built across. In others, by taking good care the frames can be taken out; but some combs, being fixed to the edges of the frames, can fall easily, to the great danger of the operator and of the neighbors. Moreover, some frames supporting two combs are liable to break under the weight. We had to correct our comb-spacing to adapt it to the requirements of the bees of this country. It was an easy matter, as we use screws as spacers. A few turns gave us the distance of 1.9-3.2 in. from center to center, which we adopted.

Another great drawback of the small size of our pets comes from the want of proper excluders. Those which we received from Europe will not work properly. Many times I have known queens to pass thru the perforations of the excluder so that the manipulations made became failures. Likewise the drone-traps allow all but two or three of the largest drones to escape.

When all this is considered one thought

comes to mind—viz., to construct implements and make foundation for China. That would remedy the evil; but the Chinese are not for European or American methods of beekeeping for the present, and there would not be a sufficient demand to incur such a cost at the present time. A second solution would be to Italianize our colonies; but here, again, a great difficulty arises—the danger of mismating. For a time I thought we could have Italian bees, for I had heard some one say that in Japan the native drones would not mate with Italian queens. I found it hard to believe, and conjectured this was to be attributed to the difference in size or to some other unknown reason. Last year all my thoughts on the subject vanished when a Chinese who had studied beekeeping in Japan told me that the Japanese cannot keep pure Italian bees, because of mismating.

Now, it may interest my readers to know how I managed to have my combs built and wired at the same time. I prepared frames with wires as if foundation were to be set in. A small starter with only two or three rows of cells was fixed to the top-bar. The frames thus made ready were put in the hive, which was perfectly level from side to side. I thus obtained beautiful worker combs when those frames were inserted between two brood-combs toward the end of the season in strong hives, or at any time of the year in rather weak ones. This process for obtaining worker combs is slow, far from being perfect, and cannot be compared to the regular and thoro work obtained from comb foundation. I would gladly receive suggestions as to the best way to have combs built when no foundation can be used.

Shanghai, China.

THE BEE IN COURT

BY C. O. TARBOX

A recent decision in the City Court of Yonkers, N. Y., determines the ownership of a swarm of bees that have come out of the owner's hive and alighted upon another's premises. Judge Beall, in deciding the case, wrote a very exhaustive opinion in which he cites authorities dating back to the time of Justinian. He says that Blackstone classifies bees as wild animals; that he takes his law from the Greeks and Romans, and that there has been practically no change in the law from the days of Plato, and that an uninterrupted line of decisions thru Greek, Roman, English, French, the Netherlands, and the English common law,

down to late decisions in Iowa are to the same effect, and suggests "the probable reason for this set policy being the danger of touching the subject." The court holds that, where a swarm of bees left its owner's premises, his title to them was not destroyed by their alighting on another's land, even tho he would be a trespasser in going upon that land to retake them; and that if another than the original owner takes them into his possession while on another's land he gets no title which vests in him or in the owner of the land upon which they are, but is liable to the original owner of the bees for conversion. This, however, seems

to be qualified by the fact that the owner must have kept the bees in sight, or have some special means of identifying the bees as his, and that, when he has lost sight of them, and so lost the means of identifying them, they are then the property of any one who lawfully secures possession of them. This seems to be the first reported case in the New York courts where this

question has been decided; and, unless reversed upon appeal, it will stand as the settled law of New York upon the questions decided. The title of this case is *Brown vs. Eekes, et al.*, reported in Vol. 160 N. Y. Supp., at page 489. The complainant, a beekeeper, was also a lawyer, and the court suggests that no lawyer needs bees to assist him in stinging.

Fredonia, N. Y.

AN OLD SOLDIER WHO IS BOTH A BEEKEEPER AND FRUITGROWER

BY S. E. O'NEEL.

I am an old soldier, 75 years of age, but still able to look after 40 colonies of bees, a large lawn and flowers, and a good fruit and vegetable garden. I get far more profit and pleasure from the bees than from anything else I have.

take flight again. Since the picture was taken, a honey-house has been built near the apiary, and the young grapevines are old enough to shade the hives nicely.

There is lots of pleasure and health in the combination of bees, flowers, and fruit.



S. E. O'Neel's apiary of 40 colonies at the rear of his residence, Dupont, Ind. Mr. O'Neel is an old soldier who finds health, pleasure, and profit from his bees and fruit.

I have each colony standing on a sloping concrete slab, which forms an alighting-board down to the ground, so the heavily laden bees can crawl in when too tired to

I dislike a disorderly back yard. Everything here is kept as nice as is the front lawn.

Dupont, Ind.

TAKING OFF HONEY RAPIDLY

BY LOUIS H. SCHOLL

Two comments on a recent discussion of the above subject by me that have appeared in *GLEANINGS* will bear a few words of explanation so that the readers will not feel that they may be misled by the experience

that I gave. The first of the comments, by P. C. Chadwick, appears on page 587, July 15.

Mr. Scholl says, page 471, June 15, that by his method it is possible to take off more

than a thousand pounds of honey in half an hour! Then he adds, "The writer holds an actual record of 1140 pounds of honey removed in exactly 28 minutes." I figure that to be just a fraction under 41 pounds per minute. No, thanks; I do not care to have any one slamming around among my pets like that.

In the August 1st issue, page 650, Mrs. Allen comments in this manner:

Mr. Scholl says, page 471, "It is possible to take off more than a thousand pounds of honey in half an hour." My marginal comment, in the light of our own recent experiences, reads merely "Whew;" May I repeat it here "Whe—ew!"

Let me explain that we are just as careful about "slamming around among my pets"

as is friend Chadwick, and that the trick of taking off the quantities of honey does not harm the bees in the least. The truth of the matter is that, when a hive is approached and the cover raised, the bees are simply told by the "smoke language" to move down and out of the finished super or supers that are to come off that hive. Then the cover is removed entirely, thrown on the ground in front of the hive, and more smoke is blown over the top of the open super. While the bees are making their way down, the next hive is treated in the same manner, then another, until we have four or five hives open and the bees going down. Rapidly returning to the first hive we smoke them all again in the same rotation. Next we set down the smoker, and, with hive-tool in

hand, pry loose and lift off quickly the topmost super from each of the four or five open hives. Grasping the smoker again we go over the smoking operation with each hive that has more honey to come off, in a rapid manner. Thus the supers are rapidly freed of the bees and removed from the hives.

The illustration given herewith shows the manner in which the foregoing is done. The few remaining bees, still in some of the supers, will find their way out and back to the hive from which they came by the time the supers are loaded on the wagon or truck, or they are shaken or "jostled" out of supers not entirely free of them by gently "jouncing" the lower part of the supers against some object. All of this is done so quickly, and yet in so gentle a manner, that there is no room for argument on the subject of "slamming around."

New Braunfels, Tex.



Scholl's method of taking off honey in a hurry.

THE ROCK HONEY OF INDIA

BY N. TOURNEUR

Many are the honeys of India; but most singular of them all is the rock honey of the Madras Presidency. It is one of the various items of the forest products collected in the Satyamangalam Hills and bulks large in the revenue list.

Rock honey is produced by a very large brown bee, and stored in holes and under ledges of rock. Coarse and dark, the wax of it very dark in color, it is in great demand among the natives.

The first season's products are collected in August, when the rocks are dry, and the harvest of the second season as soon as the hot dry weather begins. Thus the danger of slipping off the rocks is lessened very much; but on the whole it is perilous work, often bringing disaster and death to the collectors.

In the Satyamangalam Ranges the work is done by natives of the Kurumbar hill tribe. When the proper season comes for gathering the honey a party of from fourteen to fifteen start out up into the wooded ranges which the bees frequent. The expedition always sets out on Monday, which day of the week the superstitious natives look upon as lucky. The party take with them coconuts, camphor, plantains, and other offerings to their tribal deity, also their implements for gathering the honey, consisting of a long ladder made of fiber with a strong rope of the same material, a bowl made of basketwork smeared over with clay till it is water-tight; a sharp-pointed staff, and a bundle of torches made of green and dry grasses. Of the party, only two are collectors of honey, the rest being employed to carry goods and chattels, put up sheds, light fires, cook, and to do the odd jobs for the two collecting Kurumbars. These two alone climb the rocks and gather the honey, and, invariably, are brothers-in-law. That is, to be more explicit, each man's wife is the sister of the other man, and each Kurumbar is responsible for the life and safety of the other.

When the collectors reach a suitable ledge of rock, which is easily enough picked out, their quick eyes tracing the flight of the busy bees, the rope is attached to the ladder, and tied firmly to a handy tree. The ladder is then thrown off the top of the rocky ledge. One of the Kurumbars holds on to it, and the other climbs down the ladder till he finds himself on a level with the great clusters of honey-combs which are on the slippery sides of the rock. Arrived there, he puts his right foot firmly on one

rung of the ladder, and his left over the rung above till the rung is in the crook of his leg. Thus firmly fixed he swings himself to and fro, having in one hand a burning torch and in the other the pointed staff; and as he swings into the rock he applies the torch to the combs, drives away the bees, and gathers the luscious combs.

At the end of each day's work the Kurumbar climbs up to the summit of the rock. The operations go on for several days, the collector having a singular immunity from stings. On the last day, when all the honey and wax have been obtained, the rope is untied and the ladder dropped down to the bottom. From ten to eleven cents a pound is given for this honey by the native dealers.

HONEY IN COMMERCE.

Another famous honey of India is that which forms a popular article of commerce up in the Himalayan provinces. In most of the villages of the northern ranges of the Himalayas bees are kept, and the honey, whether the produce of the wild or the domesticated bees, adds to the income of many a native household.

It is usually sold in the local bazaars at an eighth of a rupee, or two annas—that is, six cents a pound; and altho not much thicker than syrup, and of a brownish color, it has a flavor equal to the finest honey of Narbonne—the honey par excellence of all Europe, and is, moreover, much less cloying.

The domesticated bee of these regions is known by the name of "mohru," "moh-ri," or "mori," according to the particular province. It is not much more than half the size of ours, but is very industrious and mild-tempered, and in this respect gives even more pleasure in working with them than pure Ligurians. Straw hives, with tapering conical roofs of reed, are in use. The fine quality of the honey is ascribed to the most common source of the bee's honey-gathering—the prangos. It is a bushy growth which grows very freely in the Himalayan provinces, and consists of long feathering leaves of dark green, crowned by a profusion of large tufts of yellow flowers, which have a rather pleasant aromatic fragrance, and are covered with a glistening, viscid, sugary juice that attracts the bees in such numbers that the flowers are often blackened by them.

A TRULY WILD HONEY.

The wild bee or "bhaonra" of these mountainous regions, and larger than our

domestic bee, also provides a large quantity of honey and wax. It is almost black in color, and has wings longer and broader than the bee of the hive. Its temper is fiery, and its sting very venomous. It usually builds its nest under the projecting ledges of rock, and steep overhanging precipices, in a situation usually inaccessible except to the most daring native.

Advantage is taken by the collectors to rifle the nests when the prangos is fully in flower, when the bees have plenty of honey, and are in their most amiable mood. When the hot season or time of dearth comes, then the wild bees are very irritable, and difficult to approach, their honey-sacs being but partly filled.

It is interesting to note, too, that the honey of the wild bee of the Himalayas, if

gathered before the month of March, is fully equal to that of the domestic bee; but if in the following month it is said to produce intoxication followed by insensibility. This effect is due, probably, to the wild bees feeding on the flower of a species of aconite which is then in bloom, and very plentifully, high up the mountains, beyond the range of flight of the domestic bee.

Both the honey and the wax of both kinds of bees form valuable articles of export down to the plains, and help to swell the revenues of the little states or kingdoms. There is a great demand for the wax, which is run down and treated for the composition of candles, in particular for those burning before the many different shrines of the many various gods of India.

Thundersley, Raleigh, Essex, England.

A TELEGRAPH OPERATOR AND HIS BEES

BY CURTIS C. GROOMS

While in my apiary the afternoon of October 11 I found aster honey coming in very briskly. At one time I noticed seventeen bees in the grass in front of one hive so heavily loaded that they had failed to reach the entrance. I do not know when I have felt so good over anything, for I had extracted from two to six combs from each of my brood-chambers during September, fully expecting some flow from aster; but up to the 28th of September none had come in. Toward the end of the month there was a good rain, altho it was cold. Soon, however, the weather warmed up, and the honey has been coming in nicely ever since. Most of my colonies had plenty of stores to last thru the winter.

Last spring I purchased 50 colonies of bees in ten-frame hives with five empty hives for \$200. I increased them to 85. Three colonies were almost destroyed by European foul brood, and four were queenless. Treating the diseased colonies and doubling up the queenless ones leaves me with 78 good strong colonies. Two of them that had the disease last spring I transferred and cleaned the hives out after charring the inside and the frames, and placed new swarms in them. These I examined a few days ago and could not find a cell of disease anywhere, nor in the colonies that I took out of these hives and put in other hives.

I sold \$237 worth of honey from the bees this year, and have a small amount left, which is selling rapidly. I sold the comb honey at 18 $\frac{2}{3}$ cts. per section in lots of six; in smaller lots for 20 cts. straight. I sold the extracted for ten cents a pound if the

customer furnished the cans. Several asked me how I could afford to sell it at that price. One man came back the second time; and when I told him the honey was all gone he said, "Why don't you charge more for it?" I think I shall charge 12 $\frac{1}{2}$ cts. for the extracted honey another year. I had a little over 770 pounds, and sold it in one month's time. I did not have to go out to sell it, for my customers all came to me and asked for it.

VALUE OF FULL SHEETS OF FOUNDATION.

Referring to the trap for destroying drones on page 743, August 15, this cannot help being a detriment to the worker bees going in and out. I believe in preventing drones from being reared in such large quantities by using full sheets of comb foundation. If a swarm is put in a hive having only starters there may be fully half drone comb built if there is a good honey-flow on. The drone-cells are likely to be in the lower half of the combs; and as the honey is stored in the upper half the queen does not have enough room to lay worker eggs, therefore there is nothing but a small force of old worker bees left in the fall. It costs only about 60 cts. to put full sheets of foundation in a ten-frame hive, and it takes only three to five days for a swarm to fill such a hive with brood, eggs, and honey. A swarm hived the latter part of June on full sheets of foundation gave me a surplus of 56 sections (four of these at 15 cts. each would pay for the foundation used), while a swarm I hived at the same time on starters never so much as entered the super at all.

Bradford, Ohio.

Heads of Grain From Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

Aunt Miranda Catnip says Doolittle is right. When a colony decides to walk out there's no use in resorting to arbitration. She says, jes let 'em swarm.

Moving Bees Without Ventilation.

That it is not always necessary to give ventilation in moving bees may sound unorthodox, but I have found it practical and convenient.

When the time taken in moving is not too long, and the weather is fairly cool, the entrances may merely be plugged with wet rags. The rags must be soaking wet, however, and should be applied without wringing any of the water out. I have moved bees in this way when they had to be confined four or five hours, and they came thru in good condition. The colonies were of ordinary strength, and the weather was warm at first, but later a cold wind came up. In this case the moving was done on spring wagons, in the daytime; but the plan is not to be recommended when horses are used in daylight. At another time I moved some very strong colonies by automobile over three miles of rough road, using this plan with entire success.

The explanation seems to be that the bees get what water they need from the rags; and the entrance being dark they lie quietly on the combs instead of continually trying to get out, as they otherwise would.

A SAFETY CARRIER FOR COMB HONEY

Here is a method of packing comb honey for shipment by express or parcel post that

seems to meet the requirements of safety and economy very well. The principle involved is that, if you want men to do things right, make the right way the natural way; make it so obvious and easy that they will follow it unconsciously.

My crate is simply a tray four or five inches deep, a little larger than the case containing the honey, and having an upright piece at each end—on the outside—and fastened between these uprights a cross-piece which holds the case of honey firmly in place, and which may also be made to serve as a handle. There should be packing enough in the bottom so that the case will set only an inch or two into the crate.

When so arranged the package will not be placed on its side, because the weight of the honey would overbalance it; it will not be placed on its end for the same reason, and also because of the upright pieces; and it will not be placed on its top on account of the cross-piece and the very evident fact that it was not meant to be so placed. Clearly the only way it will set is firmly on its bottom, in which position it has three inches of packing under the honey to take up the shock. The honey will be visible thru the glass, if glass is used, and this will serve as a further warning against carelessness, while at the same time both glass and honey are protected by the projecting crate.

Doubtless the details may be improved, but a limited experience has convinced me that the principle is sound when applied to single-case shipments.

Torrington, Ct.

Walter H. Hull

Are All Workers of One Class?

Among the workers of one and the same colony there seems to me to be a difference, not only in color but in shape as well. Some appear to have a much more slender abdomen than others, and, especially with Italians, the end of their abdomen seems to be of a much darker hue of brown. Little importance is, perhaps, to be paid to this last fact, as it can be attributed to atavism. But the difference in shape is less easily accounted for, I believe.

Often for hours I have watched bees carrying in pollen, but I have never seen one of these slender workers come in with any, altho I believe they bring in honey. I have also noticed that, after a swarm is hived and has settled quietly in the hive, the guards at the entrance are mainly or exclusively composed of these slender bees, and, when disturbing a colony, these bees are the ones to fly out first and attack the intruder.

Is this accidental, or do I see wrong? I don't know. I don't possess the required instruments to make out whether or not there is any anatomical difference between these slender bees and the rest of the workers' force, neither do I have the training for such delicate work.

Can it be possible that, like the ants, the bees have their soldiers which have nothing to do with the rearing of brood?

J. H. J. Hamelberg.

Soest, Holland, Aug. 21, 1915.

Dr. Miller replies:

There is no such thing as classes among the workers of a colony, and at the same time they are divided into distinct classes. That is, each worker in the course of its life has the same duties to perform as every other worker, so that no worker is in a different class for life from any other worker. But the work of a worker is by no means the same each day of its life. When a week old its occupation is not the same as when a month old. So it is not in the same class when a month old as when a week old, and in that respect workers may be said to be in different classes according to age and occupation.

The two classes into which workers are commonly divided are nurses and fielders, a worker being a nurse until something like 16 days old, when it changes into the other class and becomes a fielder. Of course this varies according to circumstances. At the close of winter the nurses are many weeks old; and if there are no older workers in the hive to do field work a worker may become a fielder at five days old.

The abdomen of a bee may vary greatly in size, the parts telescoping into each other. Take a bee that has been confined in winter four or five months, and its abdomen will be three times as large as that of a bee that has died of starvation. A nurse bee stays mostly in the hive so that it is not important that it should be of light weight. It fills up with honey and pollen so as to prepare food for the babies, and its abdomen is well distended. When it turns to field work, it gets down to flying trim, with no excess weight. Perhaps that may account for the slenderness of the bees you have seen. C. C. M.

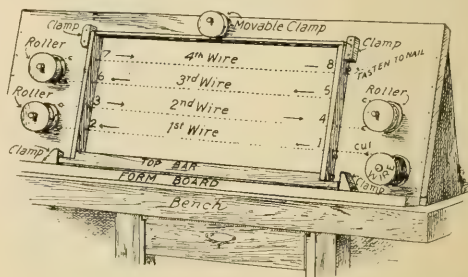
Simplex Wiring-device.

My wiring-board is a few inches wider and longer than the frame to be wired. It is fastened to a base at an angle for convenience in working. Stationary blocks or clamps are fastened in the right position as shown in the illustration, for holding the frames square, and in position while wiring. An oval-shaped movable clamp at the upper edge of the board turns down on the bottom-bar, and holds the frame in place. The whole board should be screwed or clamped to the thing so as to be perfectly rigid.

The spool of wire runs on a rod projecting out from the board. The wire as it leaves the spool is threaded thru several staples driven in the board so that when it is slack it will not unwind or kink. The wire after it leaves the staple runs thru hole No. 1, then across thru No. 2, around the lower left-hand roller, back to hole No. 3 and 4, around the roller at the right end of the board, then thru holes 5 and 6, around the upper left-

hand roller, and finally back to holes 7 and 8. At this last hole it is fastened with a nail.

The wire is easily tightened with the right hand on the spool, twisting the spool to the right, thus taking up the slack. The wire is first tightened while still on the rollers, then the spool is turned to the right after the wire has been slipped first from the upper left-hand roller, then the right-hand roller, and finally the lower left-hand roller. When the wire is at the right tension it is wrapped around a previously driven nail, the nail driven in and the wire cut.



The three rollers are of such diameter, and placed in such a position with reference to the holes in the end-bars that the wire passes around them in a direct line with the holes. The rollers are supposed to be only about an inch from the frame.

With this wiring device the frame is held rigidly, absolutely square. The wire is easily drawn to any tension desired, and cut only as used, so that there is no waste and no odds and ends. I think this is the easiest and best plan that has yet been devised. It makes wiring pleasant as well as profitable.

Oklahoma City, Okla. N. S. Gladish.

Honey Method of Introducing Simpler than Any Other.

During all of 1915 one of my colonies had a heap of dead bees before the hive continually. The symptoms resembled bee paralysis. I had a young queen ready to introduce; but when I looked for the old queen I found comb after comb solid with brood which showed that the queen was doing her part well, and I hadn't the heart to kill her.

This queen was still on the job July 15, 1916; and, strange to say, none of last season's trouble has been seen about that colony this season. However, the colony second in line from the one mentioned has had the same affliction ever since the opening of this season. There were positively no robbers, but there yet appeared to be a continual fight, the result being a heap of dead bees before the hive daily. Seeing no prospect of improvement I decided to requeen, which I did on July 15, pinching the old queen's head, then sousing the bees between the frames in the hive with honey-water, also giving the new queen a generous baptism, and running her down between the wettest frames. The whole operation (having every-

thing ready beforehand) did not take two minutes from pinching the old queen's head until the supers were back on the hive; and there have been since not enough dead before the hive to be noticed. I have not been able to figure the answer, but these are the facts.

The colony first mentioned having stored but little last season, and not promising much for this, was requened at the same time and in the same way.

This plan of introducing seems to promise well, is practicable for anybody, and as simple as can be. There is no "psychological moment," nor is there any necessity for any special experience or facility of judgment.

Lyndhurst, N. J.

B. Keep.

Why Did They Do It?

Bees sometimes do queer things. I discovered, on going thru hive No. 19 that it was hopelessly queenless, with not a cell of brood in any stage, and thinking it might have a virgin queen (which is not likely with no brood) I gave a frame of brood in all stages from the egg up, and within a few days there were 22 queen-cells well under way.

I at once sent for an untested Italian queen, which came by return mail in fine condition. I opened the hive, lifted out the frame of brood, shook about all the bees off, then cut out all queen-cells visible, replaced the frame of brood with the brood about all sealed, placed the cage with the queen and attendants on top of the frames, and closed the hive.

In 24 hours I examined the cage, thinking possibly they would have the pasteboard eaten away; but they had not done so. I removed it as per instructions, and as formerly done, and closed the hive for one week. I then removed the cage and found the queen laying well.

About one week after she commenced to lay I found in front of the hive for three consecutive mornings an aggregate of five virgin queens. This satisfied me of two things: That I had overlooked queen-cells, and that the introduced queen had been accepted.

Now listen: Just 14 days after I placed this queen in the hive I found her dead in front of the hive; and upon examination I found that she had almost filled two frames with eggs which were in about all stages of development. There was an inferior virgin queen running on the combs. Why in the name of common sense would they destroy this beautiful laying queen and accept an inferior virgin that might never lay? and where did this virgin come from so late? The old brood was too old to make a queen from, even an inferior one, and the new queen had not been in the hive long enough for a virgin to have been raised from the brood.

So I say bees do queer things. This has

broken me from giving a colony a comb with eggs when I am introducing a queen unless I introduce by some other way than the cage method, and immediately after the hive has become queenless.

Indianapolis, Ind.

J. F. Kight.

A Systematic Advertising Campaign.

The following editorial is a sample of what I furnish each of the local papers weekly. Each week during the year I get out a news item in different form. The cost of this is trifling, for I furnish each editor with honey free, and in return they put in my clippings or notices. Under this system of advertising, my sales run about four times greater than they were before.

The busy little honeybee is about the only mundane creature that hasn't taken advantage of the war in Europe to loaf on the job and thus cause an advance in price of its product. Beef and pork are almost out of sight, and never in history has the price of eggs been the case this year. Few people realize the food value of honey or it would be more extensively used on the table. It is the most important and healthful food product known to mankind, and is the only thing that has not kept pace with the high cost of living on account of an abundant local crop. Just think of a full gallon of twelve pounds for only \$1.25, and this will provide the system with more nourishment than twice the amount of any other diet, it being a digested sweet. Everybody should take a swat at the high cost of living by buying honey.

I also furnish the ministers of the city with honey free, and they help to boost sales among the country people.

Three to six girls, twelve to fourteen years old, canvass the small rural towns. I pay them a commission of 15 per cent.

I have already sold 600 gallons of honey, besides about 1000 pounds of comb honey.

Humboldt, Neb.

J. L. Gandy.

Yes, Furnish the Papers the Truth.

Enclosed is a clipping from the Cincinnati Post. On account of various explanations given, I sent in a more definite statement. When the daily papers once become interested in bees I think it a good idea to get a lot of free advertising by giving a bee-keeper's views.

WHAT DO YOU KNOW ABOUT BEES?

An argument has been raised regarding the habits of the bee. We were asked whether it ever sought honey from red clover. A farmer assured us that it did not, the honey in red clover being out of its reach. A subscriber writes that the Italian bees are able to penetrate the red clover for honey, but that the black bees do not. Has any one else any information to give about this?

In many ways honey is now used in place of sugar. As a small producer I have now more orders than at this time any other year. It seems that people are becoming more interested; but we must produce a good ripe article. This counts. If people are once misled it will take a long time to convince them to the contrary.

Cincinnati, O.

Henry Reddert.

West Virginia vs. Southern California for Bees.

I should like to get information about West Virginia as a place to live in. How much land in sweet clover would keep profitably 40 to 50 hives of bees?

Burbank, Cal.

A. H. Nash.

[The climate of West Virginia, of course, is a good deal milder than in the northern part of the United States next to and above the Great Lakes, but not as mild as it is in Burbank, Cal. For the keeping of bees or for a general mild climate you will not find any place in West Virginia probably equal to where you are. A good deal of territory in West Virginia is mountainous.

We are not able to give you a definite estimate as to the number of bees you could keep in a given area of sweet clover. Something would depend upon the locality—that is, the character of the soil and the climate. Ordinarily we should say that an acre of sweet clover would support a colony of bees. In other words, it would take about fifty acres of sweet clover to make very much of a showing in the hives, and really a hundred acres would give better results.—Ed.]

Martin and Bee-martin Very Different.

Page 717, E. G. Baldwin says "the pretty bee-martins are housed by my neighbors." Surely he must be mixing up martins and bee-martins. A bee-martin can't be made to live in a martin-house. It makes its nest out on the end of a branch. A martin and a bee-martin are no more the same thing than a chestnut and a horse-chestnut, or wheat and buckwheat. So far as I know, authorities all agree that the bee-martin does not ordinarily eat worker-bees, but eats drones, queens, and rosebugs, and drives away the enemies of small birds in general; so that it is a good neighbor except where there is queen-rearing, but a bad neighbor there.

If we could all agree not to call it bee-martin, but use the name by which I believe it is better known to the general public, "kingbird," there would be less danger of getting it confused with martins in our talk.

Steven T. Byington.

Ballard Vale, Mass., Sept. 7.

Bee or Purple Martin.

Some inquiry has been made in regard to martins eating bees. The so-called bee-martin, or king-bird (*Tyrannus tyrannus*) is known to catch bees, and I have seen them take them on the wing, but have never thought they did as much harm as good. They are easily recognized, as all of their tail feathers are tipped with white. They never nest in houses or boxes of any kind, as they always build their own nest, generally in a bush or low tree. Their eggs are cream-colored, with brown spots.

The purple martin (*Progne subis*) builds its nest in box or house, often several in one house, if it is divided into rooms. Their eggs are white. The adult male is a deep

shining blue-black all over. Females and younger males, probably including all under two years old, are of a dull purplish black above, and grayish beneath. I have never known or heard of their catching bees, and they are very useful.

THE YIELD FROM ALFALFA AT HIGH ALTITUDES

I have made some inquiry here, and conclude that the yield is at best uncertain above 5000 feet. Here in the valley, at an altitude of 4300 feet, the yield is excellent. Within twenty miles east of us the Sacramento mountains reach a height of 10,000 feet. I am told that the bees up toward the summit starved to death last summer.

THE LONG-IDEA HIVE.

I should like to say a few words in favor of the Poppleton "Long-idea hive." I did not know Mr. Poppleton, tho I lived within about forty miles of him for many years in Iowa. A near neighbor of mine, Mr. G. W. Webster, who also went to Florida later, knew Mr. P., and adopted his hive and system, extracting most of his honey. From him I learned the principle and adapted it to my own use, building hives to take L. frames, and using wide frames with separators to hold sections. I think queen-excluding division-boards would make success complete. In that climate we used these hives with double walls, the outer wall extending several inches higher, to admit of using a large chaff cushion in winter. I also used ordinary section-cases on top of frames.

Burdett Hassett.

Alamagordo, N. M.

White of Egg with the Syrup.

Some years ago a friend in Italy sent me by mail to North Germany 1½ lbs. of bees with queen, the first of March, not considering that at that time, as a rule, winter weather prevails there. I had an empty hive on hand and put in it five or six pieces of old comb (about an inch wide), as starters in the brood-frames, and gave sugar syrup—how thin it was I do not now remember; but at all events, the bees used no water. If I am not wrong, I fed up to the month of May, and gave every evening from two to six teaspoonfuls of milk and the white of an egg. It was very seldom that a bee left the hive. In June and July it was a very strong colony, and I had a rich crop from white clover and basswood.

Altho I have thought a good deal about this matter since coming to this country, I have not as yet had an opportunity to test this matter fully. The bees found, however, in this food all they required; and I think that in any case the plan should be tried out fully. For the small beekeeper it is too costly and requires too much time. But the professional queen-breeder will assuredly find this scheme of great value. The milk and egg should be renewed fresh every evening. I have at times myself drank or eaten what the bees left.

Gustav Kohnke.

Clio, Mich., Sept. 26.

A New Insecticide.

When I was able to obtain bisulphide of carbon at reasonable price (\$1.00 a gallon) I used it freely, altho there were some objectionable features connected with its use. When prices went soaring I went back to using sulphur, which is effective and quite inexpensive. We are now informed by the Department in Washington that this new insecticide, para-dichlorobenzene, is a compound deadly to insects, harmless to human beings, and has no pronounced odor which clings to fabrics like other insecticides. It is not very expensive. It may be bought in barrel lots at 15 cents a pound. Its use is very simple. It need not be sprinkled about in corners, etc., but just placed on top of the articles to be fumigated in an open can or other vessel. Para-dichlorobenzene is a colorless crystalline substance which evaporates quickly when exposed.

The new bulletin, No. 167, tells more about it, and may be had for five cents. The bee-keeping fraternity ought to make use of this new insecticide for the purpose of killing the wax moth and larvæ.

Naples, N. Y.

F. Greiner.

English Sparrows Catch Bees.

I have a swarm which a friend of mine in Ft. Smith, Ark., caught late in the summer. It has had rather hard luck in the last few weeks. The hive was in an open space on the lawn in the Union Station grounds. When the bees would come out on the alighting-board English sparrows would swoop down in droves and pick them off. In the A B C and X Y Z reference is made to bee-martins and butcher-birds catching bees, and I wondered if any one else had found that English sparrows do this. The colony was so depleted that only about a pint of bees were left.

R. G. Lowry.

Pittsburg, Kan.

[We have had one or two reports of English sparrows catching bees, but did not think the trouble serious. It would seem from your experience that at times they can be considered as an enemy of the honeybee.—Ed.]

Use Honey from the Same Hive.

On July 6 I transferred a colony from an old-style hive to a standard hive; and in making the change I lost the queen. I kept a sharp lookout for her, but failed to see her.

I filled four frames about half full with sealed brood-comb, and put half-sheets of foundation in the rest, and placed the new hive on the old stand. The bees did not all go inside the hive until the third day. On the sixth day I opened the hive, and, on lifting out the first frame, discovered the hive was queenless.

I ordered a queen right away, and on the evening of the eighth day it arrived. I introduced it on the ninth by the "honey method" described by Mr. Baldwin, and I must confess I was not on "easy street."

On examination the next day I found her on the very first comb, all cleaned up, and a half larger than when introduced the day before. On the third day, when I took a peep in the hive I found her laying.

I would advise those trying the honey method to use honey from the same queenless hive so the queen will have the scent of the colony. I used lots of honey, smearing her all over, and pouring some after her as she tumbled down between the frames.

East Butler, Pa.

W. E. Kiser.

The Daily Gain of a Hive on Scales.

The following is the daily gain of an average colony on scales. The weights were taken at night, about sundown. It is only the net gain for the day. The evaporation of the night before is not accounted for. The scales were not touched except at night. Of course in taking off supers the scales had to be changed. The first day of the record is May 24. It includes perhaps two to four days' gain—so small an amount I did not record it. The colony did not swarm. I have had a colony on scales many years, but this is exceptional in the heavy flow.

The first white-clover gain recorded May 24, 4 lbs. The following are the gains on consecutive days: 6, 5, 9, 5, 10, 13, 3, 6, 8, 7, 12, 10, 9, 7, 6, 3, 4, 9, 9, 7, 3, 12, 23, 0, 10, 16, 9, 8, 5, 13, 26, 16, 8, 8, 2, 16, 14, 10, 7, 4, 6, 4, 8, 16, 5, 2, 4, 1, 2. There probably were two or more days not accounted for. In rainy weather there was no gain. Several times it rained in the night, and was very wet until about noon. But the bees would make up in the afternoon all the night loss, and 5 or 6 lbs. net gain. The total gain was about 410 lbs. The honey is exceptionally fine—very white and clear, of heavy body.

The very heaviest gains were recorded after an empty super of extracting-combs was given. If the combs were given Monday, Wednesday would be the heavy day. The colony drew about four supers from foundation. The rest were empty combs.

Marceline, Mo.

Irving E. Long.

Honey in the Bread.

I saw something in a recent issue of *Gleanings* where a man who does his own cooking says he puts honey in his bread. Well, he has not got the "start" of me; for when I want the bread to be unusually good I take the trouble to put some honey in it; and when people praise my bread and say, "How good it is," I say, "I put honey in it this time."

Beekeeper.

Paste to Stick Labels to Tin or Glass.

The following formula will do it:

Half an ounce silicate of soda; one ounce corn starch; one and one-half pints of water. Add the starch and silicate of soda to the water, and stir until uniform; then place the dish in another vessel of water and heat until the starch is gelatinized.

Bridgewater, Vt.

W. C. Raymond.

GLEANINGS FROM QUESTIONINGS

G. W. H., California.—I have seen several toads hanging around the hives in my apiary. I killed one and found sixteen bees in its stomach. I then killed another and found forty-one bees. Is there any remedy, aside from killing the toads?

A. In a good many places toads eat many bees by sitting at the hive entrance and licking them up as they do flies. If you find a number of them about your apiary you will probably find it necessary to place your hives on stands high enough so that the toads cannot reach the entrance.

J. F. A., Cleveland, O.—What makes comb in the lower part of the hive turn dark in the center?

A. The dark color is caused by stain from the various layers of cocoons left after the bees have been rearing brood. A comb will remain light-colored except for the deposit of propolis as long as no brood-rearing is going on; but the part of the comb containing brood always turns dark and finally the whole comb will be practically black. This does no harm, however, and the comb may be used year after year with absolutely no bad effects.

F. B., Bensenville, Ill.—Which is better for wintering bees—a cellar or a woodshed?

A. A building above ground is not suitable for wintering bees in confinement, owing to the fact that the temperature changes considerably. In a cellar the temperature is more uniform; but for best results it should not go below 40 nor above 50, for any length of time, and there should be good ventilation without excessive moisture.

The shed would answer all right provided you had openings cut in the side so that the bees could have an open entrance to the outside at all times. It would be well to provide packing around the hives inside the shed in order to confine the heat.

W. F. M., Glenwood, Mo.—What makes the bees attach the combs in my sections to the separators? When I remove the sections from the super it tears a hole in the cappings where I separate them from the separator.

A. Certain strains of bees are worse in this respect than others, but the building of brace-combs is quite apt to be indicative of an overcrowded condition of the hive. It is true that you cannot always supply extra room by way of comb-honey supers at exactly the right time; but at the same time, by being careful to supply additional room before the first super is entirely finished, you can overcome at least some of this nuisance.

If full sheets of foundation are used and the hive is not absolutely level from left to right, sometimes a sheet will sag over until

it touches the separator. Under such circumstances the bees will always attach the comb to the separator.

J. S., Bandon, Oregon.—In order to have less wax in a section of comb honey, and just that much more honey, why not use drone foundation instead of worker?

A. A few beekeepers use this in sections; but it produces a rather peculiar effect, making the honey look coarse. It is for this reason that so few use it.

As a matter of fact, it is a question whether any one would notice the difference in the amount of wax in the comb when eating the honey, for counting the midrib and the cappings there is nearly the same amount of wax in a section of drone comb as in a section of worker comb.

H. B. Y., Buffalo, N. Y.—What would be a fair price for a full ten-frame colony in first-class condition in a double-walled hive well supplied with winter stores—good combs built from full sheets of wired foundation?

A. It is difficult to give a definite answer to this question, for the price that the seller gets is not so much what the equipment is actually worth but what the buyer will pay. In the fall of the year one has to consider that the buyer runs some risk in losing the colony thru the winter.

A good deal depends also on the queen. With a good young queen of a vigorous strain the colony ought to be worth around \$10.00 or \$11.00, or possibly even more. Whether a buyer would pay this is another proposition.

Good straight combs built from full sheets of wired foundation ought to be worth from 25 to 35 cts. apiece, sold separately.

O. C. E., Steubenville, Ohio.—What is the best way to move an apiary fifty yards?

A. A very safe way to accomplish the move that you refer to is to carry the bees a couple of miles into the country, leave them for a week or so, and then bring them back, placing them wherever you desire. There is then very little danger that the bees will mix up badly or get into the wrong hive.

Another plan, which is somewhat less work, but which is a little more risky, is to move the whole apiary in the late evening, placing the hives wherever you want them. Take away everything that looks like a hive on the old location. Stand boards in front of each hive in the new location; and the next morning, before the bees begin to fly, pound on each hive vigorously and smoke the bees considerably so they will fill up with honey. Then when they come out to fly they will be more likely to notice that a change has been made, and they will mark their location. We have moved apiaries short distances in this way with very little loss.

A. I. Root

OUR HOMES

Editor

Can the Ethiopian change his skin, or the leopard his spots?—JER. 13:23.

Then Paul answered, What mean ye to weep and to break my heart? for I am ready not to be bound only, but also to die at Jerusalem for the name of the Lord Jesus.—ACTS 21:13.

Let us not be weary in well doing; for in due season we shall reap if we faint not.—GAL. 6:9.

I have before remarked that I was one of a family of seven. My older brother was of a rambling disposition. When he was in his teens he would go off and be gone for days and even for weeks. He wanted to see more of the world, and, as a consequence, he found employment with ungodly men—some of whom, it seems, took pains to destroy the faith that a good mother worked and prayed to implant. Even after he was married and was the father of grown-up children he was restless and uneasy. He was all over the United States and even away down in Mexico; and later he bought a ranch near San Diego, Cal. After the death of his first wife he married the second time, and died not long after the birth of two children; and when these two children were of only tender years their mother died also, and for some time they were left only partly cared for in the city of San Diego.

When the civil war broke out, my brother, in accordance with his nature and disposition, enlisted, and became an officer in the army. After the death of both father and mother it was deemed advisable to have the children go to the Soldiers' Home in Xenia, Ohio. I have before mentioned the buildings, extensive parks, and other arrangements made for the best care of the children, especially orphans of the soldiers. In fact, it has been for years called "the Children's Home."

Well, the boy, Homer Root, seems to have inherited his father's disposition. He could not stay contented very long in one place. I am sorry to say that, while in California, without father or mother, he learned to smoke cigarettes, to use bad language, and to be untruthful. By the way, some good authority has said that, as soon as any boy begins the use of cigarettes, he becomes untruthful. It is a part of the cigarette business. Well, this nephew of mine did not seem to get along very well at the Soldiers' Orphans' Home, and then came here to work for us in our factory. Perhaps I have been unfair in not speaking of the boy's good qualities. He had a love for mechanics, and especially for electricity; but, like his father, he did not seem to like being shut up in any shop,

office, or factory. He took for a time a particular liking for the machine-shop; but soon became uneasy, and wanted to go off on the railroad where he could be outdoors, and work as an assistant to their electrician. I think he did fairly well on the railroad; but he soon wanted another change, and the first thing I knew he had enlisted in the navy and was on board of the warship *Arkansas* for a cruise of three years. The strictness in the navy seemed to do him good, and he made a pretty fair record. I have mentioned him frequently in these Home papers, and have given place to one or two letters from him, especially those pertaining to the gyro compass. Well, neither this boy Homer nor his father before him seemed to take much of a liking for church or Sunday-school, *Christian Endeavor*, nor the Y. M. C. A. They did not seem to come much along his line. During the past years I have kept more or less in touch with him, and not only wrote him letters but prayed for him; but I am afraid that much of the time I prayed without very much faith. I am afraid, also, I had given up thinking that he would ever have much to do with *Christian* work in any form.

Dear friends, in years past I have several times spoken of my "happy surprises;" and I think I have said that a Christian who does his duty, and holds unswervingly to the straight and narrow path, will, at least occasionally, meet with "happy surprises." Well, one of these came some time last winter. It was a letter from my nephew of whom I have been speaking. Perhaps I should mention first that he wrote me, perhaps a year before, saying that he was thinking of getting married to a young lady he had known at the Home in Xenia. After getting the particulars I advised him to get married, even tho some of his relatives advised otherwise. Well, now for the surprise. While in my Florida home, as I have said, I received a letter reading something as follows:

Dear Uncle:—I would give almost anything in the world to have you hear a minister preach here in Springfield," etc.

It was a surprise to me to know that the boy was attending church at all; and the idea that he should ask *me* to go to church with him was almost a huge joke. I gave a shout of surprise, and forwarded the letter to the good minister whose name he gave. I took it that he must be an evangelist, something like Billy Sunday; and so I addressed my letter to the "Reverend Mr.

Rourke, Evangelist, Springfield, Ohio." I received a prompt reply; but brother Rourke told me he was not an evangelist, but just a regular Presbyterian preacher; and he said, furthermore, that Homer was bringing more recruits into their men's Bible class than any other member. Did you ever? Just think of it—this boy whom I was worrying about was in regular attendance at a men's Bible class, and bringing in others. Of course I urged my nephew to follow the leadership of the good minister of whom he thought so much, and become a member of that Presbyterian church; and I furthermore added that, when I should hear the good news that he was an enrolled member, I would go and hear the minister he had learned to think so much of. By the way, this good pastor said something like this in his letter to me:

"Mr. Root, you cannot think how much good it does the pastor of a church to get such a letter as yours containing the one from Homer. When defeat and disappointment seem at times to be almost the only result of a clergyman's labor such letters as yours and *his* are like an oasis in the desert. It gives me an inspiration to go on."

One Saturday morning in September I started on my trip to Springfield. It had been some time since I had seen my nephew; and the more I talked with him and became acquainted with the family of his good wife, the more I was impressed with the transformation in the wild and careless boy of a short time before. He looked different and acted differently, for he is now a bright, manly *Christian gentleman*. When he introduced me to the different members of that great Presbyterian church, and seemed to be recognized on all sides as *one of them*, I could not help saying mentally, "Thank God, thank God." It brought to my mind vividly a verse in a familiar hymn that comes in something like this:

His power, and his alone,
Can change the leopard's spots
And melt a heart of stone.

I questioned a good deal about Homer's wonderful change. If I am correct about it, the good young wife urged him repeatedly to go to church with her just once. Perhaps his first attendance was at the men's Bible class. He became interested. This devoted minister seemed to have a faculty, not only for *getting* hold of young men but of *holding* them; and in a little time Homer was inviting his shopmates to go to the class. Now here is the point, friends. When you get a man or boy to work *bringing in recruits* you will very soon have him "born into the kingdom."

Away out west there is a town or city

(it may be a *city* now) called Anacortes. It was built up, or at least was started, in one year, and, as a matter of course, saloons were galore on both sides of the street. One of the prime movers in starting the town had the good sense to recognize that something *besides* saloons is needed to build up a community. Then this man commenced to talk about a church; but on all sides they considered it a big joke, and again and again his friends would say, "*You* scheming for a church? Why, what has got into you? Turned pious?"

He said he had not particularly turned pious, but in his opinion they could not have a nice and enterprising town without a church. Then the next thing was to get a preacher. So this man commenced hunting for one. He finally met a minister on board a steamer, and told him he would have to stop at Anacortes and preach a sermon. The minister demurred, saying, "How about an audience?" Our real-estate man said he would guarantee an audience if the minister would stop over one trip; and then he went about going thru the town, inviting everybody to come and hear this minister *preach*. They had some trouble in finding a room big enough and in getting seats. But our vehement friend carried the day, and all of them heard a sermon. Do I need tell you the outcome? Altho he had not planned in the outset anything of the sort, he soon became a devoted Christian worker. How could he invite people when he himself was outside the fold? And, my good friends, it will work so every time. Get to work; get these boys and girls at work doing something good and useful. Get them interested in building up churches and Sunday-schools, and in doing away with saloons and brothels, and *God* will take care of the harvest.

Well, of course I was greatly interested to see this man of whom I had heard so much conduct the Bible class. The lesson was somewhere in the book of Acts; and the incident referred to in our second text, where Paul said he was ready not only to go to prison, but he was ready to die for the Master. Our leader, in commenting on the incident, asked how many there were ready to go to jail for righteousness' sake. He said that he himself was ready to go to jail any minute rather than to compromise with the powers of darkness. I could honestly say amen to this, and I did come near saying it; but in a minute more I was glad I did not. By the way, friends, I have heard a good many different preachers of the gospel in the past thirty or forty years; and it is rare that I hear a sermon where I do not find occasion to give some point in it, somewhere, a hearty indorsement by

some sort of amen. In fact, I do not remember that I have ever, with few exceptions, heard anything from any minister that I was not ready to indorse and follow the speaker; but on this occasion I "met my match." After the good pastor had said he was not only ready to go to jail but to go to death he added something like this:

"Yes, friends, I am ready to go to jail, and stay there, and *rot*, rather than compromise with the powers of darkness."

I did not dare say *amen* to that last sentence. It frightened me. I have for years past felt that I was ready to die as a martyr, if need be; but I am afraid I was a good deal like poor Peter, who was ready to fight and ready to be killed, if need be; and he struck out with his sword in order to give the Master to understand that *he* was not afraid; but when the command came to put up his sword and do nothing his courage failed; and when just a girl suggested that he was one of that fanatical crowd his courage all oozed out, and he suddenly turned a cowardly coat and enlisted in the service of the Devil. It is very hard for me to sit still and wait for *anything* or for *anybody*. I want to be *doing* something; and when the suggestion came that I might be called upon to "lie still and rot," perhaps as many a devoted soul in ages past has been required to do, I backed down like Peter.

Again, in the sermon later the minister said something like this:

"You may be aware, friends, that there has been a good deal of talk of having moving-picture shows in our great cities looked after. A committee has been appointed in the city of New York, and they report that 80 per cent of the films in common use were demoralizing. Their tendency is to lead our boys and girls down to shame and crime instead of lifting them up or building them up."

Let me pause a moment right here. In a recent daily, mention is made of a boy who set a building on fire; and the only reason given for doing so was that he saw the same thing done in a picture show; and the show gave the whole thing in a way that would make the boy think it is a great thing to make a stir in the neighborhood by such an act. Let us now get back to the sermon.

The speaker said that, rather than be engaged, directly or indirectly, in anything that would lead our boys and girls down to crime and ruin he would be willing to be nailed up in his coffin; and then I was ready again to say "amen." I would rather die than to live having the guilt rest

on my conscience that I had been instrumental in the spiritual death of any boy or girl. But the speaker in his next sentence took me right off my feet as before. The sentence was this:

"I had rather be nailed up in my coffin, and be *buried alive*."

Let us now go back to Peter once more. When the Master said to his little crowd of followers that every one of them would desert him in time of trial, Peter boldly declared, "Tho I should die with thee, yet will I not deny thee." Poor Peter! Little did he know the power of Satan. And somewhat in like manner little did I know or realize what a coward I am, after all. I had been thinking I could consent to death—that is, a speedy death, or such a death as we ordinarily witness—for the dear Master's sake; but, oh dear me! I did not contemplate "being nailed up, and buried alive."

Just one more illustration in closing, about our transformed young relative. In a shop where he works (electrical works, of course) there is a young man who had been following Ingersoll and Tom Paine, and taking some periodical that ridicules the Bible, Christian religion, etc. Homer invited this young man to come to their Bible class. The reply was something like this:

"Bible class? Do you mean you want me to go to 'Sunday-school'? Not much." But Homer was not to be put out, and so he invited him again, only to meet with sarcasm and ridicule; but after he followed it up Sunday after Sunday this friend of his finally consented to go *once*. Homer told him if he would go just once and listen to Mr. Rourke, and then did not feel inclined, he need not go any more; and then Homer added, "Now, uncle, what do you suppose happened? Why, the time he went first was away along last spring; and he has been there every Sunday since."

Oh, yes! there is still one more thing I must tell. Before the class opened, the pastor said, "Who is absent today whom we have a right to expect to be here?"

A bright young man stood up and mentioned a name.

"Can any one tell why our friend is away this morning?"

Somebody answered, "He is out of town," and so on with several names. Finally somebody was mentioned, but no person could give any reason for his absence. Then came the question, "Who will volunteer to hunt up our friend and ask why he is not with us today?"

Some one replied very promptly, "He and I are quite well acquainted, and I will

find out and report the reason of his absence."

There, friends, is a suggestion for Bible classes, men's brotherhoods, Y. M. C. A. associations, etc. Whenever a pupil finds he has been missed and is inquired after, he will be pretty sure to come next time. Now a word in closing.

If you, my dear reader, have any young friends or relatives, a boy or girl who seems to be getting out of the straight and narrow way, do not be wearied in pleading or praying for that one. "Be not weary in well doing, for in due time we shall reap if we faint not."

=====

REPORTS ENCOURAGING AND REPORTS DIS- COURAGING.

Our older readers will remember that years ago I used to have two departments headed as above. Objection has been made to giving these great yields of honey because it tends to give beginners the idea that keeping bees is a ready means of "getting rich quick." But if we go to the opposite extreme, and give only reports *discouraging*, this would be manifestly unfair. Well, several times lately I have urged that our journal give a little more space to reports *encouraging*. Of course I do not as a rule have much to do just now with the department of bee culture. Well, only yesterday, Sept. 8, I was getting ready for my after-dinner nap when one of my sons-in-law called out, "Say, father! Don't you want to come over to the honey-room and see them unload a car of extra-fine honey?"

Of course, I went over. The first thing that pleased me was that there was not a trace of a leaky package in the whole carload. There was not a drop of honey on the bottom of the car, nor anything sticky anywhere. A screw cap was loosened from one of the cans, and some slips of pine wood passed around for the different members of the firm to sample the 20,000 pounds. Just as soon as I tasted it I uttered an exclamation of delight. In answer to my question as to who produced that big lot of extra-fine honey, Mr. Calvert replied, "Mr. Sowinski." Well, I was pleased again to be told that a foreigner (at least his name would indicate such) was the successful beekeeper, instead of some old downeast Yankee whose name has, perhaps, been before the beekeeping world for years past. I was also told that this was only about half of his crop of 40,000 lbs., and that the whole yield was from between 300 and 400

colonies. When I wanted to give the full name and address with particulars one of our men who makes it his business to hunt up and buy honey said our good friend who produced the crop would object to any report being made that would give his locality.* This matter has come up many times before, where somebody gets a great yield, and a great lot of beekeepers begin to camp all around him, very likely to discover later that the *man* and not the locality gets the honey by the carload. Let me digress a little.

A few days ago at one of our board meetings the question came up as to the purchase of a new printing-press to print honey-labels. By the way, I think we are having more orders for honey-labels just now than ever before since GLEANINGS was started toward fifty years ago. While I write, the new press is running off beautiful labels in colors at the rate of 2800 sheets an hour—the number of labels on each sheet depending on their size, of course. As usual I objected a little to the purchase of a new printing-press. I thought we had presses enough, and some that were not running. But this new press takes care of the label work largely. It is a *self-feeder*, and has already run off 2900 sheets without a stop or a failure.† As I write, it is printing 29 labels at once, or 81,200 an hour. My impression is that when people get a taste of this fine honey I have been speaking about it will keep that new press pretty busy printing labels to put on the bottles. Just a few days ago I got a glimpse of a nice little bottle of honey for only *five cents*, and I was delighted to think one could get about all the honey that is good for him, perhaps at a restaurant or a lunch-counter for "only a nickel." Mr. Calvert threw cold water on my speculation, however, by saying that the way glass bottles are advancing (on account of the war) he was a little afraid "the more we sold the worse off we would be."

Well, friends, it rejoices my heart to know that my prediction to the worrying friends (when I first got crazy about the possibilities of bee culture) toward fifty years ago, is coming to pass. At that time I said, "Now don't you worry, my good friends and relatives. The time is coming, and I expect to live to see it, when honey, like butter and eggs, will not only be on sale at every corner grocery thruout our

* This beautiful honey is supposed to have come largely from the wild red raspberry.

† By the way, I forgot to mention the fact that if any accident happens, say when a sheet gets in wrong, the press stops promptly of its own accord until somebody sets the matter right.

land, but it will also be on sale *every day in the year.*" My prediction has not yet been quite fulfilled, but it is "coming, coming, coming." Milk and honey ("uncooked

food") straight from the loving hand of the great Father, is going to take the place of intoxicants and stimulants; and may God hasten the day.

TEMPERANCE

SOME WORDS OF WISDOM FROM AWAY OVER IN SWITZERLAND.

I take it for granted that the readers of GLEANINGS, or at least the greater part of them, are going to vote dry in the coming election, or at least they will vote to put men into office who are not afraid to stand up before the world for prohibition. With this in view I wish you would not only read the little clipping below from the *Union Signal*, but get every voter, as far as possible, to read it and ponder on it before they cast their vote on Nov. 7.

THE TOLL OF THE BREWERY.

Such horrors as a great modern joint-stock brewery perpetrates are unrivaled in the whole world's history. Men in past centuries were made chattel slaves. But the slaves kept their health. Men have been killed by thousands; but the children of the murdered remained strong. Now they make slaves of them and murder them at the same time. They kill them together with their children and *children's children*. They kill them slowly; they torture them slowly to death.—*Dr. Von Bunge*, University of Basel, Switzerland.

GOUT, SCROFULA, SOFTENING OF THE TISSUES, AND TOO MANY OF OUR CRIMINALS COME FROM BOOZE.

See the following, which we clip from the *Kansas City Star*; and it comes from so good an authority as President Poincare:

WILL FRANCE GO DRY?

The leading men of France, headed by the president of the French republic, are engaged in a campaign against alcoholism. Soon after the war began, the French government prohibited the sale of absinthe. Now in every postoffice in France the following poster appears, by order of the minister of commerce and posts:

THE ALARM!

FRENCH SOCIETY FOR ACTION AGAINST ALCOHOLISM
Honorary President, M. Raymond Poincare.

Drink is as much your enemy as Germany.

Drink since 1870 has cost France much more than the present war.

The cordials of your parents reappear in their offspring as great hereditary evils. France owes to wines a great many consumptives, without counting sufferers from gout, scrofula, rickets, premature softening of the tissues and too many of our criminals.

Drink decimates France.

Mothers, young men, wives! Up and act against drink, in memory of those who have gloriously died for the fatherland. Thus you will accomplish a mission as great as that of our heroic soldiers.

It looks as though the several of the older nations of Europe may be freed from the curse of drink, notably France and Russia, and possibly England, long before the United States joins the list of dry countries.

From the above it would appear that if France gets rid of drink as a result of the war she is going to be the gainer in the end; and is it not about time that the whole wide world wake up and do likewise?

"A LOT OF MONEY WASTED."

We clip the following from Bryan's *Commoner*:

The *American Grocer* recently estimated that the drink bill of America now exceeds one billion and seven hundred millions annually. As only about one person in four uses liquor, this means \$90 for each. That's a lot of money to waste, especially as poor men are the chief sufferers.

CROOKS SHUN A DRY TOWN AND A DRY STATE.

Morden Ward, in the *Detroit Times*, declares that crooks have been flocking from dry states into wet ones, and that self-defense will force Michigan to adopt prohibition. "A crook hates a dry town, for there is no place to hide," he says. "Closing the saloon naturally drives out all of the professionals." —Methodist Temperance Board.

"IT WERE BETTER FOR 'HIM THAT A MILLSTONE WERE HANGED ABOUT HIS NECK."

Mr. Root:—I am enclosing a clipping concerning a king who is setting an example that will destroy others, and it seems to me as if it might have been better if he had been drowned. Surely the influence for wrong is very great.

Chrisman, Ill., Aug. 1.

GEO. W. FAIR.

The clipping referred to above comes from the *Terre Haute Star*. It reads as follows:

KING THANKS SCHOOL BOYS WHO HELPED RESCUE HIM.

COPENHAGEN, July 30.—King Christian received at the castle today two school boys who helped to rescue him last week when a boat he was sailing was upset near Aarhus, and presented them with cigarette-cases.

After expressing his thanks to the boys, the king and queen drove to a restaurant to thank the proprietor, who discovered the king's perilous position and gave the alarm. The king presented him with a diamond ring.

Just as soon as I got hold of the above it occurred to me that our Lord and Master *did* say of a certain class of people, "It were better for him that a millstone were hanged about his neck and that he were drowned in the depth of the sea." Now the question arises, "What class of people does the above severe arraignment refer to?" The fore part of the verse I have already quoted tells what it is as follows: "But whosoever shall offend one of these

little ones which believe in me." Perhaps some of the friends will think that our good brother who sends the clipping, and myself, are pretty severe. But when we take into consideration what cigarettes are doing for the youth of our land, are we not right about it? It is true the conditions laid down by our Lord are in regard to offending "little ones which believe in me." I suppose it refers particularly to those who go out of their way to spoil the faith of some child who has already started to serve the Master. Suppose, for instance, some wicked man should stop a group of boys who are on the way to Sunday-school and tell them that their religion is only a superstition, etc., and turn them away. I can recall instances in my own life where this thing has been done, where a grown man stopped his work just in order to *poison* the minds of children.

Where does the cigarette come in here? Ask our teachers or any one who has charge of children, and I think they will all say that no other one thing will lead a boy astray more quickly than encouraging him in the cigarette habit. May God speed the day when *the whole wide world* shall be awakened to the real harm the cigarette is threatening to do to the *boys* of the world.

TOBACCO AND TUBERCULOSIS.

The following, from the good doctor who answers questions in the Health Department of the *Cleveland Plain Dealer*, is suggestive:

HAVE HIM STOP SMOKING.

J. S. B. writes: "My son, who is 20 years old, has tuberculosis. He likes to smoke a little. Is it harmful, and would you advise him to stop?"

ANSWER.

A youth with tuberculosis has enough to combat without adding the poisons from tobacco smoked even in moderation. Have him stop.

Please notice that this good doctor suggests, if he does not say so right out, that every tobacco-user is handicapped more or less. He has got to scrape up sufficient vitality to overcome the poison, even when used "in moderation," as suggested in the above. Please notice also that the tobacco-user is not only handicapped in his ability to resist disease, but he is also handicapped more or less in "efficiency." If you want to be at your very best, for yourself or for humanity, and for the children who are coming along after you, cut out all sorts of stimulants, and even "tobacco" in "moderation."

"HOBOES"—A NEW TRICK.

Just a few days ago a fairly well-dressed man came limping up to the door as if he could hardly walk; and the expression on

his face indicated that it gave him great pain even to hobble along. He piteously asked Mrs. Root if she could not give a poor lame man a little lunch to enable him to get to his friends. Now, Mrs. Root has for some time past (perhaps because I insisted on it) offered these fellows work but no lunch. This man, however, was unable to work, and so she spent quite a little time in picking up for him a good meal. But imagine her surprise to see him start off with his lunch at a very good gait without a trace of his former lameness. This aroused her curiosity, and so she watched him until she saw him (when he supposed he was fairly out of sight) throw away the greater part of the food she had given him. It probably was not *good enough* to suit him.

I give this bit of experience because I know there are a good lot of women among the readers of GLEANINGS who as a rule have enough to do without encouraging tramps; and I hope that, after they have read this, they will not be humbugged as Mrs. Root was. The incident seems to indicate that tramps are getting poor encouragement, and that they *usually* get a cold reception unless they put up some new "stunt" like the above.

COTTAGE CHEESE—SOMETHING FURTHER IN REGARD TO HOW TO MAKE IT.

The big advertising that has been given to sanotogen has called attention to cottage cheese, especially since Prof. Wiley has told us that cottage cheese is practically the same thing as the much-lauded sanotogen. Well, here is something from a lady who has been for many years a friend of GLEANINGS, in regard to how to make cottage cheese. By the way, we find it in our market for only 10 cts. per lb., and it is also offered at the same price away down in Bradentown, Fla. When I can get hold of it I prefer it with my fruit supper to the regular cheese which costs three times as much or more. Now for the directions as to how to make it.

In GLEANINGS for March 1, p. 214, Mrs. Root should have said more for a new hand, and also some old hands, as to how to make "Dutch cheese," cottage cheese, or "smear kase." It should be stirred often to heat even—just enough for the whey to separate from the clabber, and hang in a jelly-bag until cool. If too hot it will not be healthy. Fanny Field, the old-time poultry woman, would not make it too hot for her chickens. It is best when the clabber first thickens—not old, sour, or bitter. Some use a thermometer to heat, and season with cream, butter, sugar, salt, pepper, cinnamon, or nutmeg. It takes practice to make it perfect, and then it is good without anything. If you pour hot water on, and then stir cold water it answers for small quantity.

Watertown, O., March 10. M. L. DEMING.

"SCALECIDE"

Fall Spraying Controls Leaf Curl.

Does the Work; Cleans up the Trees.

Don't put off the dormant spray until the spring rush. The weather may be bad or the ground too soft. Spray this fall and make sure of controlling peach-leaf curl, San Jose scale, pear psylla, apple canker, collar rot, etc. You can save trees now that would die before spring. Use "Scalecide." Better and cheaper than lime sulphur—cuts

the labor cost. Never injures trees, hands, face or pump. Cost of spray materials will advance before spring. Order now and save money. Write today for free booklet, "The Whys and Wherefores of Fall Spraying." B. G. PRATT CO., Manufacturing Chemists. Department 61. 50 Church Street, New York City.



Jacob Biggle on "Corn"

An absorbing article you will find in the November issue of The Farm Journal. Something about the American Indians, the first corn growers. Also some good New England philosophy.

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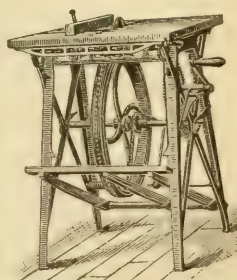
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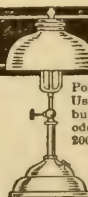
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A1 clover-amber-blend honey in new 60-lb. cans, at 8 cts. VAN WYNGARDEN BROS., Hebron, Ind.

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—Clover honey of fine quality in new 60-lb. cans. THOS. PHILLIPS, Johnsonville, N. Y.

Light-amber honey, two 60-lb. tins to the case, at 7 cts. Sample, 10 cts. H. C. LEE, Brooksville, Ky.

Buckwheat honey, comb and extracted; also clover extracted, 60-lb. cans. E. L. LANE, Trumansburg, N. Y.

Clover-basswood blend and buckwheat honey. Two 60-lb. cans to the case, 8 cts. per lb. EARL RULISON, Rt. 1, Amsterdam, N. Y.

Light-amber extracted honey, 60-lb. cans, at 6 cts. per lb., f. o. b. cars. Sample, 10 cts. C. R. ALLEN, Vicksburg, Miss.

1000 lbs. choice new-crop buckwheat extracted honey in 60-lb. cans—a bargain at 7 cts. per lb. A. C. BEACH, North Rose, N. Y.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7½ cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Fancy white comb honey, 13½ cts. per lb. In crates of 8 cases. JULIUS GENTZ, Wabeno, Wis.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at 8½ cts. per lb. Also fancy and No. 1 clover comb honey, 4¼ x 1½ sections. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb. W. A. LATSHAW CO., Clarion, Mich.

FOR SALE.—A limited quantity of choice stock buckwheat and pure clover honey in 60-lb. cans and 5-lb. pails. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case; extracted in 60-lb. cans; clover, 9 cts.; amber, 8 cts. Amber in pails, 6 ten-pound or 12 five-pound to case at \$6.00 per case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW CO., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—Extracted honey in any lots. Send sample and prices. ED. SWENSON, Spring Valley, Minn.

WANTED.—Beeswax. State price and quantity. RUDOLPH OSTHEIMER, Sandusky, O.

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Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York.

WANTED.—Comb honey, fancy and No. 1 white clover; also buckwheat comb; glassed sections preferred. HOFFMAN & HAUCK, Richmond Hill, N. Y.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares. SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Comb and extracted honey at jobbing price. NATIONAL HONEY-PRODUCERS' ASSOCIATION, Kansas City, Mo.

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Get our new Rubber Stamp and Label Catalog. ACME PRINTING CO., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

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WANTED.—To rent bees in the Salt River Valley. Have had six years of experience in the Buckeye Valley. A. J. ROSS, 2209 N. Monroe St., Phoenix, Ariz.

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WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

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Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortlandt St., New York.

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Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y., East End.

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FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-half with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

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QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

HOLLOPETER's honey-gathering strain of Italians are now at their best. This strain has a record of 100 lbs. more honey per colony than the average colony. Safe arrival by return mail. Untested queens, each, 75 cts.; 10 for \$6.00; 20 for \$10.00. Tested queens each, \$1.00. 1 lb. bees with queen, \$2.00. We are booking orders now for spring delivery.

J. B. HOLLOPETER, Pentz, Pa.

HELP WANTED

WANTED.—Experienced young man for a bee-keeping supply department; one who has a knowledge of beekeeping and is not afraid to work. Give reference, and state salary expected. THE FRED W. MUTH CO., "The Busy Bee Men," 204 Walnut St., Cincinnati, Ohio.

Convention Notices

The annual meeting of the Western New York Honey-producers' Association will be held on Tuesday, November 14, 1916, at the American Hotel Hall, Akron, N. Y. An interesting program will be provided, covering various topics of interest to beekeepers. A good attendance is expected, as this has been a fairly good season. If any one has any new or practical ideas, short cuts or innovations of any kind, pertaining to beekeeping, he is invited to present them with details thereof. Election of officers for the coming year and other business of interest to members will be brought up for discussion. Every one interested in bees or honey is invited to attend. Akron, N. Y., Oct. 13. WM. F. VOLLMER.

The twentieth annual meeting of the Chicago Northwestern Beekeepers' Association will be held in the Great Northern Hotel, Room 138, on Monday and Tuesday, December 4 and 5, 1916. The program is not completed, but the following expert to be there and read a paper on the subject following their names: N. E. France, Platteville, Wis., "Marketing Honey"; Edward Hassinger, Jr., Greenville, Wis., "About Heating and Clarifying Honey"; Louis C. Dadant, Hamilton, Ill., subject not announced; Kenneth Hawkins, Plainfield, Ill., "Displaying Live Bees in Chicago Groceries"; Dr. E. F. Phillips, Washington, D. C., "Extension Work in Beekeeping." The question-box will be made a strong feature. Of course many others will have papers.

Valparaiso, Ind. JOHN C. BULL, Sec.-treas.

ONTARIO BEEKEEPERS TO MEET IN TORONTO IN DECEMBER.

The Ontario Beekeepers' Association will hold its annual convention on Tuesday, Wednesday, and Thursday, December 12, 13, 14, in Toronto. This later date than usual will be welcomed by the beekeepers, as the great rush of fall apiary work will be over.

A very interesting program, extremely practical, has been arranged by the executive committee.

Prominent beekeepers from both Canada and United States will be present. Mr. C. P. Dadant, Hamilton, Illinois, editor of *The American Bee Journal*, will take up the question of "Prevention of Natural Swarming." Mr. Dadant is an extensive honey-producer, and has harvested over 100,000 pounds of honey this past season. The Dominion Apiarist, Mr. F. W. L. Sladen, in charge of the bee-investigation work on the various experimental farms, will speak of some line of his investigations. "Beeswax Production" will be discussed by Mr. W. A. Chrysler, of Chatham; and Mr. G. A. Deadman, Brussels, will deal with "The Use of Shallow Supers in Connection with the Regular Size." Comb honey has been successfully produced by Mr. S. B. Bisbee, Beamsville, and his experiences will be valuable and interesting. Special apiarian appliances will be explained by Mr. E. T. Bainard, Lambeth, and Mr. W. J. Craig, of Brantford.

Of special interest from the social side of the convention will be the banquet on Wednesday evening, at which Mr. Couse will speak of the "Past Presidents of the O. B. A." Mr. Couse has been a member continuously since the association was organized, and for many years held prominent positions on the executive committee. His personal acquaintance with the past presidents enables him to handle his subject in a very interesting and able manner.

Programs will be ready for distribution shortly, and may be had by applying to the Secretary-treasurer, Morley Pettit, O. A. College, Guelph.

BEEKEEPING COURSE AT RUTGERS.

The need for and the opportunities in honey production are so large in New Jersey that Rutgers College has decided to offer a short course in bee husbandry.

It is believed that nine-tenths of the nectar annually secreted is lost thru lack of properly managed bees to gather it. It is known that tons of honey are annually brought into this state to supply local needs, and that practically no effort is being made to increase the use of honey.

In view of these facts the splendid opportunity for profitable honey production in the state is apparent.

Many have started producing honey without training, and with such a small number of colonies that success was impossible.

The largest honey-producer in the state has but 250 to 300 colonies of bees, representing an investment of not over \$3000, and the net proceeds average \$1500 annually.

One active man should be able to do all the work in handling 300 to 500 colonies, with the help of unskilled labor for two or three weeks during extracting time.

That this splendid resource of the state may be developed, Rutgers College will offer a short course in bee husbandry provided as many as four persons apply for the course. This course is planned to give the student a practical knowledge of profitable bee husbandry. Any one after completing the course, and after having spent one season in a commercial apiary, will be fitted to conduct profitably a honey-producing business.

Full particulars regarding this course can be had by addressing Prof. F. O. Minkler, Director Short Courses in Agriculture, New Brunswick, N. J.

TRADE NOTES

We call attention to the decidedly advantageous subscription offer now made on the back cover, giving one year's subscription to *GLEANINGS*, together with one's year's subscription to *Green's Fruit Grower* and the *American Poultry Advocate* (leaders in their fields) all for \$1.00. This is a rare chance in the subscription line. Take advantage of it while you can.

\$3.00 COMBINATION PRICE.

The combination price of a year's subscription to *GLEANINGS* in *BEE CULTURE* and the new forthcoming edition of the *A B C* and *X Y Z* of Bee Culture has been fixed at \$3.00 (for the cloth binding). The new *A B C* and *X Y Z* will be off the press about Jan. 1 next. Orders for the new edition can be booked now.

DON'T SEND MORE.

That advertising in *GLEANINGS* pays is again proved by the fact that in response to our advertisement in our Oct. 1st issue for certain back numbers of our journal responses poured in from every direction until our need of back numbers was filled times over. Please don't send more; but remember that advertising in *GLEANINGS* pays.

Special Notices by A. I. Root

DEATH OF PROF. A. J. COOK.

We note by the *Western Honeybee* for October that our good friend Prof. Cook has gone. We are told that he died at the home of his son in Owosso, Mich., Sept. 29, aged 74 years. The above is the first intimation I have had of his death; and had I known that he was back to his old home in Michigan I would have considered paying him a visit. In our next issue I expect to give a sketch of my good friend of years ago. May God be praised that he died with an abiding faith in a glorious hereafter.

OFF TO FLORIDA, AND THAT "ADDRESSED POSTAL CARD."

As usual, Mrs. Root and I expect to start for our Florida home after I get my vote in on election day; and, God helping me, I expect to make that vote for men who, like myself, want to see the whole wide world dry—men who are not afraid to stand out before the world and declare themselves heart and soul for nation-wide prohibition of the liquor-traffic. Now about the postal card.

Down in my Florida home I cannot very well have a stenographer—that is, I would not have enough writing to keep a stenographer busy; and somehow in my old age I do not take to the dictaphone nor even to the typewriter. I can take my pen and write something on a postal card, and it does not wear on my nerves like these new-fangled inventions. Let me illustrate.

Altho I have for years past begged the friends to inclose an addressed postal card when writing to me, a good many seem to forget it or do not understand. One friend last winter asked a lot of questions that necessitated hunting over back volumes and interviewing books and catalogs for half an hour or more. When I was ready to answer him to the best advantage, by writing very small I got a good lot on the postal card he inclosed. When I turned it over I found he had omitted putting his name and address on it. Dear me! I wonder if anybody thinks I cannot afford to keep on hand a stock of one-cent stamps and postal cards. Well, I addressed the card as well as I could. He wrote his letter very well; but when it came to the name and address, he just put it on with a rush. After worrying over it I got it wrong, and in due time the card came back to me from the Dead-Letter Office, marked, "No such office." When I went back to my files and found his letter again, and after more careful scrutiny, I found I had spelled the name of his town wrongly.

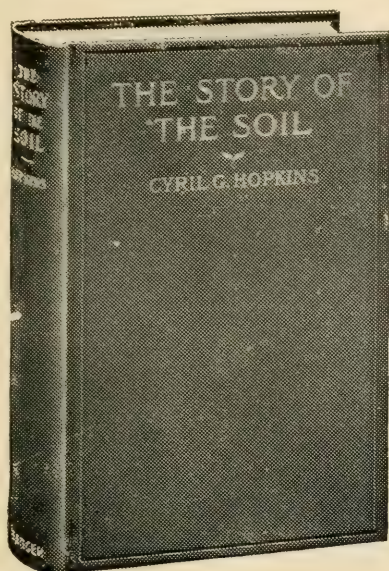
Now, then, friends, just fire at me as many letters as you choose; but before you write the letter, address a postal card so that Uncle Sam or your postmaster can read it; then write all you like, and I think I can promise to give you an early answer. You see, with an addressed postal card I do not even need to read your name unless I choose.

By the way, friends, why would it not be a splendid idea for every "mother's son" of you to have some postal cards with your address printed in plain black and white? and then when you are writing to anybody, no matter who, inclose a postal and help him to give you a prompt answer of some sort, may be while he is standing in the postoffice, so he can fire it right straight back at you?



ROOT QUALITY is emphasized in these stickers. Printed on high-grade gummed paper with a rich red ink, they reflect the taste of the user and add to the appearance of the stationery. Try 1000 and compare. . . 35c PER 1000 POSTPAID.

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A Wonderful Book

This is the judgment of
every thinking man
who has read

"The Story of the Soil"

By Prof.
Cyril G. Hopkins

It covers the whole field of life on the
farm, soil fertility, and perma-
nent agriculture.

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"Holds the intense interest of the reader."
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of gratitude."
—Chicago Tribune.

"Worth millions to the farmers of
America."
—Prairie Farmer.

"Ought to be in the hands of every
farmer in the world."
—Farmer and Breeder.

"I enjoyed every word of it. A fasci-
nating novel about the soil."
—Editor American Agriculturist.

"A wealth of information."
—Editor Wallace's Farmer.

"The book is destined to do more good
and stir more thought among the farmers
of this country than any other publication
that has yet appeared."
—Ex-Gov. W. D. Hoard.

Don't Wait Till They are Gone

This book formerly sold for \$1.62 in cloth binding. A few days ago we secured from the publishers the entire remaining stock of this great book in paper binding and can offer it with "Gleanings in Bee Culture" for one year at \$1.15. When this consignment of these books is exhausted we shall be unable to furnish more.

DON'T WAIT. Get in your order today.

Gleanings in Bee Culture, Medina, Ohio

... A Great ... Subscription Offer

**Three Leaders
Three Kindred Businesses
Three for \$1.00**

Gleanings in Bee Culture is now able to announce one of the most valuable and most advantageous low-price subscription offers it has ever made, namely: Gleanings in Bee Culture, Green's Fruit Grower and the American Poultry Advocate—all three one year for \$1.00. To the readers of Gleanings, it is not necessary to point out the advantages in the business combination of bees, fruit and poultry—and here are three journals that tell you as much (or more) about bees, fruit and poultry as any three journals published—and only \$1 for the three one year.

Green's Fruit Grower

Rochester, New York

With Charles A. Green as Editor, is the oldest fruit journal in America, published at Rochester, the very birthplace of the fruit industry in the United States. It tells in season, all about spraying, how to beautify the home grounds, about ornamental shrubs, vines and trees, small fruits, home gardens, and successful orchards. In fact, it covers all phases of fruit growing, from planting the trees to marketing the fruit. It has a special department where subscribers' questions are answered, and a department devoted to the home and its interests.

Advanced enough for the commercial grower, yet simple enough for the beginner, and always reliable, it deserves a place in the homes of all who are interested in fruit-growing for home use or commercial purposes.

American Poultry Advocate

Syracuse, New York

This great poultry authority, established 1892, is devoted to interests of both fanciers and practical poultrymen. It is authoritative and helpful in all branches of poultry work, from hatching and rearing the chicks to maturing fowls for show room and market. Tells how to get eggs at the least cost, how to feed to get best results. No detail left out. It is the second oldest poultry publication in the United States and stands second to none in its value to poultry raisers. It is helpful to the beginner as well as the expert. The newest and best in poultry literature is found between its covers each month. This paper will help you to success in the management of your poultry, and by following the valuable information given you should be thrifty and prosperous.

The Three for Only \$1.00

This combination can be secured only by writing direct to the publishers, and while the offer may be open to our readers for a year it may have to be withdrawn earlier on account of general increased cost of publication. Secure it today.

Gleanings in Bee Culture, Medina, Ohio

The A. I. Root Co., Publishers

Cleanings in Bee Culture



FREE

An Old Book . . . but a Good One

Winter Care of Horses and Cattle

By T. B. Terry

The famous author of this book treats of the most humane and profitable care of both horses and cattle. Among the subjects he deals with are Shelter, Comfort, Feeding, and the Different Kinds of Feed, Watering, Exercise, Kindness, Saving Manure, Feed Crops, Barn Arrangements, etc. It's all valuable. It can be made to mean dollars and dollars to you, if you own a horse or cow.

This book will be sent free to you, postpaid, if you will send us your subscription (\$1.00) to Gleanings before Jan. 1 next, and so help us to reduce the volume of work in our subscription department during the January rush season. If you have already subscribed for Gleanings for a year in advance, send us 10 cents and we will mail you this famous Terry book—now old but always good. Fifty pages, paper bound, with introduction by A. I. Root.

This offer will hold good so long as our supply of these books lasts. We have now about 1200 of them. The book originally sold at 40 cents. The copies now in stock are a trifle shop worn, but not to a noticeable extent.

Gleanings in Bee Culture, Medina, Ohio

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1. and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1....holding 24 sections, 4 1/4 x 1 3/8, showing 4	10,	\$2.00;	100,	\$18.00
No. 3....holding 12 sections, 4 1/4 x 1 3/8, showing 3	10,	\$2.00;	100,	\$18.00
No. 1 1/2....holding 24 sections, 4 1/4 x 1 1/2, showing 4	10,	\$1.90;	100,	\$17.00
No. 6....holding 24 sections, 3 3/8 x 5 x 1 1/2, showing 4	10,	\$1.80;	100,	\$16.00
No. 8....holding 24 sections, 4 x 5 x 1 3/8, showing 4	10,	\$1.80;	100,	\$16.00

Shipping-cases with Glass.

	with 3-inch glass	with 2 inch glass
No. 11... Same as No. 1... Nailed, 35c; in flat, 1,	25c; 10, \$2.30; 100, \$21.00	100, \$20.00
No. 13... Same as No. 3... Nailed, 22c; in flat, 1,	15c; 10, \$1.40; 100, \$12.50	100, \$12.00
No. 11 1/2... Same as No. 1 1/2... Nailed, 35c; in flat, 1,	25c; 10, \$2.20; 100, \$20.00	100, \$19.00
No. 16... Same as No. 6... Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	
No. 18... Same as No. 8... Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	

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Then subscribe to
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Send twenty-five cents for four-
months' trial subscription.

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Save Money on Your New Stoves

If you are thinking of getting a new heater or kitchen range this fall, by all means write to the Kalamazoo Stove Co. for their new catalog. To look at the beautiful illustrations of the popular styles of stoves in this book, and to note the low factory-to-you prices, would whet the appetite of any stove-buyer.

Never before have we seen such opportunities for saving money. Here are heaters, base-burners,

kitchen ranges, of the highest quality sold at remarkable money-saving prices. Almost every one has heard of the Kalamazoo Stove Co. This company has sold thousands of stoves and ranges to our readers. They had big exhibits at all the leading state fairs and many county fairs. They have sold goods direct by mail to customers in almost every town and city in this country.

They are known from coast to coast for quality goods and for satisfying their customers. One stove in their catalog that attracts our attention particularly is their new Kalamazoo Crown Heater. It's in Mission design, and has all the elegance and beauty that heretofore has been found only in the big base burners, and its price but a fraction of what most concerns would ask for a stove of this type.

Another new design that attracts great attention is the New Kalamazoo Mission Steel Range with white enamel splashier back and oven-door front. We doubt if any one has ever seen anything more beautiful for the kitchen.

WRITE NOW—HIGHER PRICES COMING.

Owing to increase in cost of materials every one is advancing prices. The Kalamazoo Stove Co. do not guarantee their present low prices after December 1, 1916. Therefore *write at once*—get your order in this month and take advantage of low prices.

A dollar saved is as good as a dollar earned; and if you are in the market for a stove, heater, base burner, or kitchen range, get in touch with the Kalamazoo Stove Co., of Kalamazoo, Mich. Write today—get your stove before prices advance. Ask for their catalog No. 416.

Special Notices by A. I. Root

GOATS, GOAT PERIODICALS, AND GOATS FOR SALE.

There have been so many inquiries since our article that we wish to inquire if somebody can tell us about the goat periodicals; and will somebody who has goats for sale put a short notice in our advertising columns to answer inquiries?

THE BOOK "GARDENETTE" CLUBBED WITH GLEANINGS.

See what is said about this book on page 1093. We have an arrangement with the publishers whereby we can offer the paper edition together with GLEANINGS for one year for \$1.40. The book sells for 60 cents. The cloth edition is later and much larger, containing 133 pages, while the paper-bound edition has only 64. This larger and later edition will be furnished together with GLEANINGS for \$1.75. The price of the book alone is \$1.25.

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ST. LOUIS.—Prices are unchanged since our last quotations. The demand for extracted honey has been very good, but comb honey is moving rather slowly owing to warm weather. Our market is plentifully supplied with comb honey, but is in good shape for shipments of southern honey. We quote extra fancy comb honey, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.50 to \$2.75. White extracted honey brings 9 cts.; light amber in cans, $7\frac{1}{2}$ to 8 cts.; amber in cans, $6\frac{1}{2}$ to 7 cts.; in barrels, $5\frac{1}{2}$ to 6 cts.; clean average yellow beeswax brings 30 cts.

R. HARTMANN PRODUCE CO.

St. Louis Mo., Nov. 6.

SABINAL.—The honey is just about all in, also out. The last honey was disposed of as fast as could be gotten ready for the market by beekeepers of this section, also at one and two cents better than the prices for earlier honey, notwithstanding the earlier honey was of better grade. We quote No. 1 comb honey, per case, 10 to 11 cts. in two 60-pound cans; No. 2, amber bulk in two 60-lb. cans, 7 to 9 cts. Light-amber extracted honey, in cans, 8 to 9 cts.; amber, in cans, 6 to 8 cts. Clean average yellow beeswax brings 26 to 28.

Sabinal, Texas, Nov. 6.

J. A. SIMMONS.

DENVER.—Comb honey in carlots moves slowly, but extracted in carlots is in very active demand. Comb honey graded by Colorado rules is sold in a local way at the following jobbing prices per case: Fancy white, \$2.97; No. 1 white, \$2.84; No. 2, \$2.70. White extracted, 8 to $8\frac{1}{2}$; light amber, $7\frac{1}{2}$ to 8 $1/3$. For clean yellow beeswax we pay 26 cts. per pound in cash, and 28 in trade, delivered here.

COLORADO HONEY-PRODUCERS' ASS'N.

Denver, Colo., Nov. 8

PORTLAND.—No great demand for comb honey. Conditions are much the same as previously reported. Extracted honey is moving very slowly. Last season's holdings are about cleaned up. We quote extra fancy comb honey, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.75. White extracted brings 9; light amber, in cans, 8; amber, in cans, 7. Clean average yellow beeswax brings 26.

Portland, Ore., Nov. 6.

PACIFIC HONEY CO.

ALBANY.—Demand is very good. Receipts are heavy, and market weak; crop is a large one, especially light and mixed grades. It is not practical or proper to sell comb honey (of necessarily uneven weight) by the case, but by weight, gross and tare. We quote fancy clover comb, 15; No. 1, 13; No. 2, 11 to 12. White extracted, 8; light amber in cans, $7\frac{1}{2}$; amber in cans, 7. Clean average yellow beeswax brings 32 cts. per lb.

Albany, N. Y., Nov. 9.

H. A. WRIGHT.

CHICAGO.—There are free offerings of comb honey, yet it sells at fairly steady prices. We quote extra fancy, per lb., 15 to 16 cts.; fancy, 15; No. 1, 14; No. 2 or out of condition, 10 to 13. White extracted honey brings 8 to 9 cts.; light amber, in cans, 7 to 8 cts.; in barrels, 6 to 7 cts.; amber, in cans, 6 to 7 cts.; in barrels, 5 to 6 cts. Clean average yellow beeswax brings 32 cts.

Chicago, Ills., Nov. 9. R. A. BURNETT & CO.

LOS ANGELES.—Our stock of extracted is almost exhausted. There is a large stock of comb looking for a fair market, mostly in hands of producers; quality fair. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. White extracted honey brings $8\frac{1}{2}$ cts.; light amber, in cans, 8 cts.; amber, in cans, 7 cts. Clean average yellow beeswax brings 35 cts.

Los Angeles, Cal., Nov. 9. GEO. L. EMERSON.

KANSAS CITY.—Demand is limited on account of warm weather, and trade being supplied to a great extent by local beekeepers. With cold weather we look for a better demand. We quote fancy comb honey, per case, \$3.00; No. 1, \$2.90; No. 2, \$2.65 to \$2.75. Light-amber extracted, in cans, brings $8\frac{1}{2}$ cts.; amber, 8 cts. Clean average yellow beeswax brings 25 cts. C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Nov. 6.

HAMILTON.—Honey of fine quality is still coming in. Some dark honey is still coming in at lower prices. Demand is good. We quote extra fancy comb honey, per case, \$2.50 per dozen; fancy, \$2.25; No. 2, \$1.50. White extracted, per lb., 12 cts.; amber, in cans, 10 cts.

F. W. FEARMAN CO., Ltd.,
MacNab Street Branch.

Hamilton, Ont., Nov. 6.

DETROIT.—Comb honey is in good demand. It is slow coming in. Stocks on hand are light; plenty offered. Extracted also is in good demand. We quote extra fancy, per case, 15 to 16 cts.; fancy, 14 to 15 cts.; $13\frac{1}{2}$ to 14 cts.; white extracted brings 8 to $8\frac{1}{2}$.

F. R. REYNOLDS & CO.

Detroit, Mich., Nov. 7.

PHILADELPHIA.—We have nothing new to report on comb honey. We could move some good extracted honey in 60-lb. tins. We quote white extracted, per lb., $8\frac{1}{2}$ to 9 cts.; light amber, in cans, 7 to $7\frac{1}{2}$ cts.; amber, in cans, 6 to 7 cts. Clean average yellow beeswax brings 28 to 30 cts.

Philadelphia, Pa., Nov. 6. CHAS. MUNDER.

BOSTON.—Demand is good; stock is moving freely. We quote extra fancy comb honey, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00; No. 2, \$2.25 to \$2.50. White extracted, per lb. brings $10\frac{1}{2}$ to 12 cts.; light amber, in cans, 8 to 9 cts. Clean average yellow beeswax brings 28 to 30 cts.

Boston, Mass., Nov. 7. BLAKE, LEE & CO.

BUFFALO.—Receipts are more liberal this week, but still light for the season of year. Stocks are well cleared, and not much accumulation on the market. We quote extra fancy comb honey, per lb., $15\frac{1}{2}$ to 16 cts.; fancy, 15 cts.; No. 1, $14\frac{1}{2}$ to 15 cts.; No. 2, 13 to 14 cts.

Buffalo, N. Y., Nov. 9. GLEASON & LANSING.

CLEVELAND.—Demand fair at quotations. Supply in our market not very heavy. We quote fancy, per case, \$3.85 to \$4.00; No. 1, \$3.65 to \$3.75; No. 2, \$3.00 to \$3.50.

Cleveland, O., Nov. 10. C. CHANDLER & SONS.

PITTSBURG.—Conditions are practically the same as per our report of Oct. 25, with a slightly improved demand, with no change in prices.

Pittsburg, Pa., Nov. 9. W. E. OSBORN CO.

TORONTO.—Prices are unchanged since last issue. Comb honey which is now on the market sells as follows: No. 1, per case, \$2.40 per doz.; No. 2, \$2.25.

EBY-BLAIN LIMITED.

Toronto, Ont., Nov. 6.

MATANZAS.—Light-amber honey in barrels brings 46 to 47 cts.; amber, in barrels, 46 to 47 cts.

Matanzas, Cuba, Nov. 4. A. MARZOL.

MEDINA.—Comb-honey offerings continue from unexpected quarters, with prices easy. Extracted honey in the West has passed into the hands of dealers for the most part, and is now offered only at advanced figures. Eastern markets are also improving.

Medina, O., Nov. 10. THE A. I. ROOT CO.

Get Wholesale Prices

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For Stove
Book—FREE!

See new styles—unbeatable quality at manufacturers' money-saving prices. Cash or easy payments. We pay freight and ship within 24 hours. 30 days' trial—360 days' approval test, \$100,000 Bank Bond Guaranteed. Write today. Ask for Catalog No. 416

KALAMAZOO STOVE CO.
Manufacturers KALAMAZOO, MICH.

A Kalamazoo
Trade Mark Registered Direct to You



To Sell Your Honey

you must create and sustain a demand. . . Nothing better for this purpose than our stickers.



Printed on high-grade gummed paper, with a rich red ink, they will add to the appearance of your stationery. . . 35c per 1000 postpaid.

The A. I. Root Co., Medina, O.

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with

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Gleanings in Bee Culture

Medina, Ohio

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy FANCY AND NUMBER ONE WHITE COMB HONEY, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

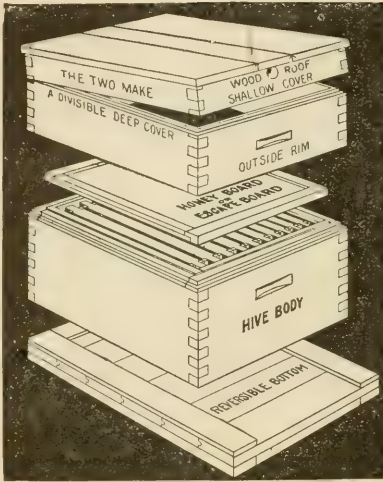
We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.

"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market. ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

A. G. Woodman Co., Grand Rapids, Mich.

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

LOS ANGELES HONEY CO.

633 Central Bldg. . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies—full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

BEE SUPPLIES

Send your name for new 1916 catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)
Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

HONEY-JARS

No. 25 1-lb. screw-cap, \$5.00 a gross. 1/2-lb. screw-cap jars, \$4.25 a gross. Discount on quantity.

HONEY

We have a fair stock of both extracted and comb honey. Price on application. If you have honey to sell, write us. Cat. of apiarian supplies and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

CANDY

Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter. It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

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Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
- Five-gallon Cans
- Five and Ten Pound Pails

Four per cent Discount on Goods for Next Year's Use

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Raw Furs My graders' guide and price list are FREE.

Furs held separate on request. Rug and robe making a specialty. No commission or express to pay when you ship to

GEO. E. KRAMER, Valencia, Pa.
Mention "Cleanings"

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—
Maine Central and Grand Trunk.
Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager

WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery—a month or more in some instances. Goods ordered now carry 4 per cent discount during October. Send in your order just as soon as you find out just what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. PREPARE! Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make it into

Dadant's Foundation

for you.

If you prefer, we will pay you our best trade price in exchange for BEE SUPPLIES.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED at all times.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor
A. I. Root, Editor Home Department

H. H. Root, Managing Editor
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

NOVEMBER 15, 1916

NO. 22

EDITORIAL

PROF. FRANCIS JAGER, elected president of the National Beekeepers' Association at the last meeting in Chicago, is a live wire. He outlines some policies that will mean the development not only of the organization itself but of the industry at large.

Lack of Rains in the Clover Belt

THE United States weather maps which we are getting daily, while they do not indicate a dry soil for clovers, yet show that the rainfall thruout the eastern states has been rather light. It is to be hoped that this will be followed by snows in winter and rain next spring. Clovers are still in good condition in our locality, and the enormous yield of white clover and alsike last year will mean a good seeding for next season.

Bee Inspection in Connecticut

FROM Part 6 of the annual report of the Connecticut Agricultural Experiment Station for 1915, we learn that, during the year, 494 apiaries were inspected, containing in all 4241 colonies. In 26 per cent of the apiaries European foul brood was found. In 8-10 of 1 per cent American foul brood was found. Pickled or sacbrood was found in ten apiaries. The total cost of inspection was \$1.51 per apiary.

Our Cover Picture

A VERY enthusiastic backlotter is L. C. Green, Albany, Cal., whose backyard apiary is shown on our cover for this issue. We judge that Mr. Green is also quite a poultry man, tho he prefers the bees. Quoting from his letter he says:

"Talk about your suburbanites having vegetable gardens, chickens, rabbits, etc., to while away their spare time and help out on the high cost of living. Bees exceed them all for pleasure and profit so far as I am concerned, and I have tried them all. I

am as enthusiastic now as my brother from whom I caught the bee fever, and I can talk nothing but bees. My wife says, 'Bugs.'

"I started in the spring of 1914. I made arrangements to purchase one colony; but the party from whom I was to get it telephoned to me saying that this colony had now swarmed and if I wanted them both I would have to pay \$5.00 more. That was making money fast, wasn't it? I said I guessed I would not take the bees at all, but finally I was told to come and get the two at the original price."

Diagnosing Without Removing Frames

WHILE it is true, as our correspondent, Mr. Chadwick, points out, in this issue, page 1964, that diagnosing colonies without moving frames might be a bid for carelessness, if he will look back to what we said on page 776 he will see that that method of determining the condition of a colony was not recommended for beginners. The exact methods for accomplishing these results are shown in the A B C and X Y Z of Bee Culture under the head of "Frames, to Manipulate."

How to Get Rid of Cross Pesterer Bees

MR. CARMONA, in this issue, page 1083, gives a kink of the trade that is worth knowing. Every now and then there will be a few cross bees that will follow one about the yard for an hour at a time. They are hard to hit with the hands, and they compel one to be ever on the alert, and always keeping the veil drawn down over the face, no matter how hot the day. Mr. Carmona offers a remedy that we feel sure is quick and effective. Try it.

Foul-brood Law for New South Wales

SECTION 1 of the foul-brood law for New South Wales, and mentioned on page 1087, shows a feature that should merit the atten-

tion of the beekeepers of this country. If every beekeeper in every state were compelled to make out a report of the conditions of his colonies, and particularly whether they have any bee disease, it would assist the bee inspectors materially in their work. Perhaps such a provision would not be practicable in this country; but if every beekeeper were compelled to make a report whether he had bee disease or not, and failing to make such report would be subject to a fine, it would save the bee inspectors from going over territory that is probably clean, and direct them at once to the diseased spots.

Government Figures on the Honey Crop for 1916

FROM the Monthly Crop Report published by authority of the Secretary of Agriculture, Washington, D. C., we find on page 91 of the September issue a table of average yields of surplus honey per colony, spring count of 1916, up to September 1, as compared with 1915 to the same time: Connecticut, Virginia, West Virginia, North Carolina, Georgia, Minnesota, North Dakota, Alabama, Montana, Wyoming, Arizona, Idaho, Oregon, and California show a smaller crop than in 1915. All the rest of the states show a larger crop with the exception of Rhode Island and Wisconsin, which show the same average crop both years. The states which show the greatest increase over last year are New Jersey, Maryland, Ohio, Indiana, and Illinois.

Beekeeping for Pleasure as well as for Profit

If there is any place in Uncle Sam's domains where bees can be kept for *pleasure* as well as profit it is along the Florida rivers, particularly the Apalachicola, St. John's, and the Indian rivers. It is just fun to run back and forth to the outyards on the river banks in that mild and salubrious climate; and while the keeping of bees along these rivers may not mean a large profit it will mean renewed health and a new life. On the St. John's and Indian rivers, the apiaries will necessarily be small—a few colonies at a place. As we go further south toward the Florida Keys the yards may be larger.

The pictures by C. H. Clute in this issue, pages 1069 and 1070, bring back to the editor pleasant memories of when, three years ago, he was fighting chills and fever, and when he got back his health. There is some-

thing besides dollars in this world; and the biggest asset one can have is good health, no matter what it costs. The editor has not found it necessary, like Ponce de Leon, to *hunt* for the fountain of eternal youth in Florida. He found it on these rivers.

Outdoor versus Indoor Wintering

WHILE the tendency seems to be decidedly toward outdoor wintering as mentioned in our issue for Nov. 1, page 1011, some figures presented by our old friend Doolittle on page 1066 of this issue would seem to argue very strongly for cellar wintering. According to Doolittle's figures the consumption of stores by colonies indoors is less than half of those outdoors. Other investigators made similar comparisons in former years and discovered about the same ratio. Were it not for the fact that the colonies wintered outdoors are in many cases considered to be an advance over those wintered indoors, every one would use cellars where the climate is severe enough. Canadian beekeepers are inclined to believe that, in spite of the larger consumption of stores, the outdoor bees are enough ahead to make up the difference. Or, to put it another way, the outdoor colonies it is believed will have a larger force of young bees for the harvest. A colony that is strong enough to gather 100 lbs. of honey may be worth the extra stores.

The exact relative difference in honey producing between an outdoor and indoor wintered colony has never been tested out experimentally. We hope some experiment station will try this out on two groups of 25 or 50 colonies so as to get an average.

A Chain of Bee Conventions

A CHAIN of bee conventions will be held in Kansas Nov. 20 and 21; Indiana, Nov. 27, 28; Ohio, Nov. 29, 30; Michigan, Nov. 30, Dec. 1 and 2; Chicago-Northwestern, Dec. 4, 5; Minnesota, Dec. 5, 6; Iowa, Dec. 5, 6; Wisconsin, Dec. 7, 8; Ontario, Dec. 12, 13, 14; Idaho-Oregon, Dec. 5, 6.

The Kansas meeting will be held at Topeka. Secretary, O. A. Keene.

The meeting in Indiana will be held at the State House, Indianapolis.

The meeting in Michigan will be held at Lansing. A banquet will be given by the A. I. Root Co. and M. H. Hunt & Sons. See Convention Notices.

The meeting of the Chicago-Northwestern will be held in Chicago, Great Northern Hotel, John C. Bull, secretary.

The meeting in Iowa will be held in Des Moines, Hamlin R. Miller secretary.

The convention in Ontario will be held in Toronto, Morley Pettit secretary.

The Michigan beekeepers are making great plans for a big convention—probably the largest bee convention held in this country this year.

The Wisconsin meeting will be held at Madison, Gus Dittmer secretary.

Idaho-Oregon will be held at Ontario, Oregon, P. S. Farrell secretary.

Announcement in regard to the place of the Ohio convention has not yet reached us.

Dr. E. F. Phillips and E. R. Root expect to attend some of these conventions. Unfortunately the dates conflict in some cases, as will be seen. The Editor will not be able to attend the conventions of Kansas and Idaho-Oregon and perhaps those where the dates conflict.

For other convention notices see Convention Notices.

The Dark Side of Beekeeping

YEARS ago, in the early days of this publication, we used to carry departments known as the Growlery and another as Blasted Hopes, to represent certain gentlemen of the cantankerous or those who suffered from a bad winter, a poor season, or a poor locality. The Blasted Hopes fellows did not see anything very attractive in beekeeping. They were going out of the business, and were anxious to pay their departing respects to their brethren of the craft. The cantankerous didn't like the publicity, and so we discontinued those departments.

Our correspondent, Mr. Closson Scott, page 1074, apparently is not afraid of telling his failures, and he does it with severe frankness. Altho some of our subscribers have done remarkably well during the past season, and have secured big crops, and while a few of our backlot friends have cleaned up \$5.00 and \$10.00 per colony, it may be well for us to consider that there are some others who have not cleaned up anything—in fact, they are out of pocket.

Mr. Scott has correctly diagnosed the cause of his failure or failures—namely, the poor locality. By looking up the map we find that his portion of Ohio is not a good bee country; indeed, one of the best beemen in the state, twenty miles east of him, after securing for a series of years some very low averages, decided to move to a better locality. He moved on a straight line west into the northwest part of the state, and now he is getting good averages. He is well pleased. We might suggest to our correspond-

ent that he move also; for evidently he does not lack in experience; but, no matter how much he may know about the production of honey, he cannot get it if it is not in the fields.

Honey Crop Conditions and Prices

IT is apparent that the general market shows that *extracted* honey is improving everywhere. It is equally apparent that there has been a very large crop of *comb* honey; and as a consequence the market on this commodity is easing up. It has, in fact, been low all this season. See Honey Market.

Our readers will remember that last winter and last spring we cautioned producers not to run so much to comb honey, as there was such a large supply left over. We were severely criticised at the time for doing so; but the logic of events, and low prices on comb honey during the past summer and fall, with prospects that they may go lower, show that if producers had heeded our advice, and run more for extracted, the market on comb honey, at least, would have been better, without any injury to the price of extracted.

We hardly know what advice to give for next year. It is our opinion that the lower prices on comb honey will induce beekeepers to run largely for extracted next season. This will be a mistake. There will be enough producers dropping comb-honey production without every one making a grand rush for the extractor. Here is a case in point. Last year potatoes were comparatively low—so low, indeed, that farmers this year decided to put their land into wheat and corn. What has been the result? A light crop of potatoes, with prices ranging from \$1.80 to \$2.00 a bushel, with every indication that they will go higher before next year's crop will be available.

THE BOTTLE TRADE ON THE INCREASE.

Fairly reliable information goes to show that there will be a larger consumption of honey this year than was ever known before in the history of the United States. Honey in bottles is coming more and more into demand. It will soon be time to develop the trade, if it has not already arrived, of honey in tins in 3, 5, and 10 lb. sizes. The bottling trade is stimulating the demand for liquid honey; and the good housewife will see that it will be cheaper to buy in tins than in glass. It will not be many years before the average family will begin to lay in its supply of extracted honey in 60-lb. cans. Many of them are doing it now.

The supply of maple syrup is growing smaller and smaller. The demand for good table sweets in the mean time is growing larger and larger. While the glucose concoctions can supply a certain cheap trade, it is evident that the average family wants something of a higher grade. Honey is the only available article that can be obtained in quantity.

PRICES ANOTHER YEAR.

It is apparent that honey prices are bound to advance another year. GLEANINGS believes that the beekeeper should not only get more for his honey, but that the consumer should pay correspondingly more for it. Our general campaign of advertising is beginning to have its effect; for we are now in possession of reliable information that shows that the trade in bottled honey is beginning to assume enormous proportions. If some of the beekeepers of the country could know the amount sold by the various bottlers they would be surprised. While production is on the increase enormously, it has not kept pace with the demand; and had there not been a very large production in the eastern states this year, honey would have advanced like all other food commodities; and it is almost sure to do so another season.

Regulations Relating to the Export of Honey from New Zealand

GLEANINGS is indebted to Mr. Isaac Hopkins, of Auckland, N. Z., for an extract from the *New Zealand Gazette*, for Nov. 25, 1915. The reprint consists of an order in council for some regulations on honey exports, which went into effect the first day of December. In more than one instance American beekeepers have observed that progressive New Zealand is not one whit behind the times.

There are twenty-one regulations in all, but lack of space prevents giving more than a summary of these. The first six regulations define the terms used, specify the six ports from which honey may be exported, and paragraph No. 4 gives the name of the store at each of the six points in question. Honey intended for export has to be forwarded to one of the appointed stores not less than seven days before shipment. Where there is a noticeable difference in the standard of honey the owner is obliged to submit such honey in separate parcels with a distinguishing mark on each. No honey will be graded or allowed to be exported unless it is granulated.

Regulations 7 and 8 have to do with the method of packing the honey and the branding. Honey intended for export has to be packed in clean tins, lacquered or oiled on the outside to prevent rusting, each tin to be provided with a leak-proof lid capable of being easily removed and replaced. The tins have to be packed in clean new cases of well-seasoned lumber, planed on the outside, and bound with metal straps or wire. The weight of the honey must not exceed 120 pounds net.

The owner must indelibly brand with the approved export brand, which contains the words "New Zealand Produce—Pure Honey," name of the owner, etc. The net weight of the honey also has to be branded on the cases.

Regulation 9 has to do with the securing of application for export of the Director, etc.

Most of the remaining regulations have to do with the grading. The honey is divided into four classes according to color: White, light amber, medium amber, and dark. The system of grading is based on the following points:

Flavor	40 points
Color	10 "
Condition	15 "
Grain	12 "
Aroma	8 "
Freedom from scum and froth.	10 "
Packing and finish	5 "
Total	100 points

The A, or Special grade, is the honey which grades from 94 to 100 points, inclusive; B, or Prime grade, 88 to 93½ points; C, or Good grade, 80 to 87½ points; D, or Manufacturing grade, 65 to 79½ points. No charge is made for the grading. The grader stamps a grade-mark on the cases and delivers to the owner a certificate of the grade. No honey can be exported which scores less than 65 points, and, of course, any tins showing signs of leaking are barred. The decision of any grader is held final, and no action against any grader is permitted.

New Zealand cannot consume all of the honey produced. That much of it must be exported is, therefore, a foregone conclusion. Under these conditions a uniform system of grading becomes a very real necessity. Honey-producers of this country, however, may profitably take notice of this forward step of the New Zealand members of the craft, for the great drawback to honey-selling in the United States is carelessness in grading and the lack of a uniform system of grading.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



FOR feeding as late as Oct. 15, a syrup of two parts sugar to one of water is recommended, p. 988. Isn't $2\frac{1}{2}$ to 1, as given p. 963, better? [In your locality, yes; in ours, 2 to 1 would be strong enough.—Ed.]

"A queen not showing sufficient strength to resist European foul brood in the start is not worth any future trials against the disease," p. 967. That may be true in Mr. Meeker's locality; but in my locality the disease may appear in a colony with an excellent queen, and caging her upon first attack is the very best treatment.

LAST Temperance Sunday my Sunday-school class of men thought it might be well to vote the Prohibition ticket, only they couldn't think of losing their votes. "Suppose," said I, "an election were to decide whether Marengo was to have saloons, and you were sure the town would go wet, which way would you vote?" "If I were the only one to vote that way," said one, "I'd vote for a dry town." "How about voting for a dry president?" said I. A surprised look went around the class, and one of them with a sheepish grin said, "You've got us."

You ask, Mr. Editor, p. 966, whether lime, sodium, etc., should not be considered with iron in honey. Sure; and if you will turn to p. 841, the place that I suppose started your query (p. 837) whether I was not attaching too much importance to iron, you will see I said "iron and other matters." I'm entirely with you that *all* the things you mention, in which honey excels sugar, should be kept before the public constantly, and I'm glad of this opportunity again to stress the minerals in honey, not because more important than other things you mention, but because the public—and possibly some editors—don't realize that elements minute in quantity may be greatly important. [We give up. Guess you're right.—Ed.]

I SAID it was a physical impossibility for bees to build comb with worker-cells one side and drone on the other. Now, what does that troublesome Allen Latham do but send me a sample of the "physical impossibility," a plain case of drone on one side and worker on the other? He says: "The explanation is simple. Whenever bees work out only one side of a sheet of foundation and put honey in those cells before the other side is worked out, then the other side will more often than not be more or less

drone. I have seen hundreds of sections where this occurred. It is doubtful if it ever occurs in natural comb-building." That leaves it still unexplained how bees can build drone-cells on a worker-base. Examination of the sample shows that they didn't do so in this case, for the base is neither drone nor worker, but *flat*. Either he uses foundation with a flat septum, or else his bees have the trick of flattening it. I've seen many thousand sections, many of them with one side built out first, but never observed a single case like the sample sent. I shall have to modify my statement by saying it is a physical impossibility for *my* bees to build worker-cells on one side and drone-cells on the other side of a natural base. But I'm not responsible, Allen, for what fool things your bees may do.

ARTHUR C. MILLER, you take sides against me, p. 932, for criticising one who said "there is no need of having a queen a year old to determine if she is a good breeder." Please look again at that Straw, p. 139, and you will see that the thing I was objecting to was making prolificacy the only point in choosing a breeder, the statement having been made "that there was no need to have a queen a year old before deciding whether she would be good to breed from, for we could tell before she is three months old what kind of a layer she would be." You would object to that yourself, for you say "my queens are at least eight months old before I pick the breeders." But you have some right to object to the unqualified statement I made: "I don't see how I can estimate a queen's value until she is more than a year old." For that might be understood to mean that no one in any case could judge a queen under a year old. Here's my ground: I cannot know the value of a queen until she has been in the hive *from the very beginning of the season until the close of the honey-flow*. Likely enough you would agree on that. If your queens are only eight months old at the close of the honey-flow, then eight months is old enough to judge. My honey-flow closes toward the last of September. At that time some of my queens are only a year old, possibly less. But the greater part of those that began the season are more than a year old, and I must know the rating of a queen *in comparison with others*. So I should have said: I don't see how I can estimate the relative standing of a queen until my queens average more than a year old. Say, Arthur, let's be friends again.

J. E. Crane

SIFTINGS

Middlebury, Vt.



Honey seems to be moving more readily than a year ago, notwithstanding the larger crop.

"European foul brood is a respecter of persons," says Wesley Foster, page 910, Oct. 1, and he is right.

An item in a recent number of the *Rural New-Yorker* speaks of the great value of sweet clover in subduing Canada thistles.

Arthur C. Miller's observation and explanations, pages 931, 932, Oct. 1, are so entertaining and enjoyable that I honestly believe it pays to stir him up occasionally.

I was glad to learn from GLEANINGS, Oct. 1, page 903, that glass is being eliminated from section honey. It always seemed to me a swindle to sell so much glass for honey.

That is not a bad idea of Dr. A. F. Bonney on getting schoolchildren to write an essay on honey, and offering a prize for the best. We are certainly getting practical these days.

Reference is made, page 902, Oct. 1, to wintering bees under snow. Our experience has been that the more snow about hives the better, providing the entrance slopes away from the hive so water will run away from the entrance.

We have had fairly good success in introducing virgin queens into full colonies at once after removing the old queen, by Mr. Baldwin's method of immersing in honey and pouring down honey with the queen. I believe this method is going to prove of great value where we wish to supersede old queens.

It has been a lot of work to weigh every section of our honey this fall, and place the different weights in several different grades; but it is something of a pleasure to know that every buyer will get every section in the same case of the same weight and quality. Another thing I notice, 11 and 12 ounce sections of honey look much better when packed by themselves than when packed with heavier honey. Small apples by themselves may be No. 1; but packed

with large apples they are most emphatically *culls*.

HOW DANGEROUS IS SACBROOD?

Prof. Burton N. Gates calls our attention, page 913, Oct. 1, to the great loss to beekeepers from sacbrood, a subject of more than ordinary importance. The whole subject of sacbrood is usually treated as a small matter, and dismissed as "nothing but a little sacbrood." The facts are, it is always a serious drawback to the prosperity of a colony, and many times nearly as destructive as American foul brood. While it is thought to be of small consequence, we could hardly expect much interest to be taken in any remedy that might be offered. The disease has such an elusive character of appearing and disappearing that any attempt to cure it has seemed like fighting the air. Some years we have not found half a dozen cells of it, and again it has interfered seriously with the success of many colonies. One beekeeper I know destroyed the old combs in one hundred colonies in one season to get rid of foul brood, and very successfully, too; and the next season I believe half of the hives contained sacbrood. Where did it come from? I don't know. I have sometimes thought we were more apt to find it in new combs than in old, so that there would seem to be a poor show of cleaning it out by shaking on to foundation. Where we have had very bad cases of it we have of late sometimes broken them up, destroying the combs.

With this disease, as with European foul brood, I believe we shall find the most satisfactory treatment in removing the queen where there is a serious loss from it, and requeening with more resistant strains.

Sacbrood is often mistaken for foul brood. While writing the above paragraph on sacbrood I received a letter from Mr. Ivan Robinson, of Pembroke, N. H., saying he had found some very suspicious-looking brood in one of his hives that he feared might be foul brood, as the colony had dead brood, and had failed to store much honey. He had destroyed every bee with brimstone, and put the honey in a safe place. Later I received a sample of the brood, which proves to be sacbrood. The sample of brood received was in this year's comb; and if he had destroyed only the queen, and had given another of resistant quality, he might have had a good colony another year, free from disease. I cannot help admiring his thoroughness, however.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Some good fall rains have already fallen thruout the greater part of Texas. Fall and winter rains assure us better honey crops the following season, hence these are welcomed by the beekeeper.

An enjoyable and profitable time was spent in a picnic by the members and friends of the Guadalupe Valley Beekeepers' Association on the grounds of the Bathing Beach on the Guadalupe River, near Seguin, Saturday, Oct. 14. It was the first attempt of this kind for this association, and it was so successful that another and much larger picnic of this kind will be held next spring. Besides "bee-talks" by several of the more prominent beekeepers, there were also demonstrations of a varied nature, in which not only the men but the ladies took part.

Henry Brenner, of Seguin, Texas, has returned to Porto Rico, after a journey to those islands last spring. He reported excellent advantages existing there for extensive queen-rearing, having experimented along this line while there. His report was also that he was far more successful in his attempts there than under the conditions existing here in this part of Texas. The honey, however, was all rather dark in color in those localities visited by him at that time; but a peculiar feature connected with this is that the comb itself is all of the whitest kind. While the comb honey looks beautifully white from outside appearances the honey itself is very dark in these white combs.

BEEKEEPERS MORE INTERESTED.

There has been a lack of interest on the part of the Texas beekeepers during the last several years that was beginning to tell. The individual beekeepers were plodding along their own narrow path and according to their own good will, little concerned about their fellow-men following the same pursuit. Producing their crops and marketing these without much regard for market and other conditions, there has arisen each season a crisis of low prices and deplorable market conditions.

With this regular annual recurrence, and its effect on the financial condition of the beekeepers there has awakened a deeper interest and a desire to take some steps that may aid in stemming the tide that was doing material harm. There now exists a

greater desire to do that which some of us tried to bring about years ago—co-operate and organize, and use united effort to a better advantage and benefit of every beekeeper and the beekeeping industry as a whole.

LOSES ONLY TWO PER CENT IN MATING.

While visiting Mr. Henry Brenner, near Seguin, Texas, a few weeks ago, I was astonished at his success in rearing queens this summer. According to his statement he lost only about 2 per cent of queens failing to become mated, or out of a few over one hundred queens only three were not successfully mated. Two of these were drone layers, and one did not lay at all. The writer saw many of the queens after they had all been laying for several weeks, and their nuclei were quite strong with their own offspring. They were all reared from two selected yellow Italian breeding-queens that had shown excellent results as honey-storers and for other qualities.

All of these queens were mated in upper stories and over strong colonies of bees. A solid board partition cut off all communication between brood-chamber and nucleus. One comb of brood and honey and several combs containing more or less honey were placed in this upper story. Then a cupful or two of bees, previously prepared according to the Stachelhausen method, were poured on to the combs after a ripe queen-cell had been placed between two of the central combs. A hole bored thru the rear of the hive, somewhat toward the other wall of the hive from that near which the nucleus is located, provides an entrance for these bees.

An important item explained by Mr. Brenner is that of not using any division-board next to the outside comb of these nuclei to prevent the robbing-out of the nuclei as is so often the case. He states that if a division-board is used it provides a sort of ante-room in the vacant space between this board and the wall of the hive, into which the robbers will enter from the entrance hole; and, once inside this, they find it an easy matter to gain access to the nucleus proper. Without the division-board and the bees of the nucleus guarding the outside comb of the nucleus, the robber bees do not enter thru the entrance hole at all; and, consequently, he does not lose any of his nuclei by being robbed out.

His method of obtaining queen-cells and taking care of them seems rather unique also, and will be mentioned later.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The meeting of the San Bernardino County beekeepers held at Redlands, Oct. 7, was well attended, and was a success in general.

Rains have continued to fall in rather generous amounts, totaling nearly four inches in some localities. This is very unusual for October. A dry winter is prophesied by many; but past weather records do not bear out the idea.

The hive standard is pretty well established in the Langstroth size and should be maintained as the standard, but I am convinced that a deeper frame and not so many of them would make a more ideal hive and one better adapted to the needs of the bee.

Breeding is at a very low ebb in this locality just now. Some colonies opened today, Oct. 30, contained not one cell of brood. This is due to the fact that just now is the period when there is perhaps less inducement to breed than at any other time of the year.

The greatest objection to bee-escapes is that in hot weather there is danger of combs melting down, and in cold weather the honey gets too cold to uncap and extract readily. I have never found as satisfactory a way as to shake and brush the bees, then extract the combs at once while they are warm.

Mr. Crane has discovered that bees work on the wild carrot; now if we could get them to work on the cockle burr we would have the most universal honey-plant in the United States, for I have found that old weed growing everywhere I have been thru all my travels, even on the dry foothills of California.

If a colony of bees begins to "hang out" we may expect them to swarm, not because it is a necessary part of swarming, but because it is a sign that there is a surplus of bees. Swarming is nature's way of relieving the congested condition. Ventilation will retard swarming because it relieves the necessity of the bees moving out.

Gasoline is excellent to use in smothering a colony. If your hive is tight-bottomed, pour it in the entrance and close it up

tight; all will be dead in a short time. Moths in a mass of webbed comb may be dispensed with quickly by pouring gasoline over it; the slightest bit touching a moth will kill it instantly.

When hiring a man get one you can trust and then treat him like a human being. Good food and comfortable quarters gives a man self-respect as well as energy. I have little use for the attitude assumed by some men in this state toward their hired help. We are all human; and because a man is out of a job is no sign he is a bum. Even if he were he might be made a better man by kind treatment.

In the October 15th issue Mr. Crane says: "A bee finding a scanty yield of nectar in the flowers of one apple-tree naturally flies to another, and in so doing it gives the best possible cross-fertilization." In this thought he is getting down to the real cause of swarming. I expect to submit an article on the cause of swarming soon, but that sentence touching this one thought will, in justice to Mr. Crane, be eliminated.

The editor cites a case in the Oct. 15th issue where he moved bees less than a mile and not one bee returned to the old location. That is possible when moving even less distance, but it may or may not be because the bees have not traversed the territory. By confining bees to the hive, after moving them a short distance, for ten or twelve hours, then giving them an entirely new entrance there will be little trouble.

The diagnosing of an apiary by simply lifting the hive and looking under, as recommended by the editor and endorsed by Mr. Byer, may be all right in some localities at some times; but some of the requirements necessary are not told, and it seems to me to be a bid for carelessness. Here in the West we have many beekeepers who would be prone to follow this kind of plan, even in some cases failing to lift the hives at all. Here also arises cause for the rapid spreading of disease in many localities. I will not commit myself by precept or example to a plan that will encourage the shiftlessness already far too common in this or any other disease-infested locality. Where there is a reason to suspect the presence of disease, careful inspection is necessary and should be encouraged to the greatest extent.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



Further inquiries have come regarding bee-martins referred to on p. 716, Aug. 15. The bee-martins are king-birds which are fly-catchers. The scientific name is *Tyrannus tyrannus*, called also *Tyrannus Caroliniensis*, which is the true bee-martin or bee-bird; but several other species of the *Tyrannus* in the West and South are also called bee-martins or bee-birds, and many fly-catching and insect-eating birds are often misnamed bee-birds, tho not king-birds at all.

MANGROVE AND PALMETTO ON THE EAST COAST.

The finest palmetto-mangrove honey we ever saw has been gathered by our winged friends this summer—not the largest in amount, tho the total is a fair crop, but the quality is about as fine a table honey as a connoisseur could want on his pancakes for breakfast. We use it (honey, not pancakes) for every meal. As before reported, palmetto lasted about twice as long as usual this year. Our own crop will be about four tons. The blending of the mangrove and the palmetto honey by the bees is unavoidable, as one bloom overlaps the other. But no matter. Both are light-colored, both mild-flavored. The mixture is a little finer than either one alone, for the pure mangrove has just the faintest suggestion of a salty taste that disappears in the blending of the two.

CONDITION OF BEES IN FLORIDA.

Bees are in unusually fine condition all over the state this fall. Not only did the summer keep them stronger than usual, but also in September and October, right up into November, they have been gathering freely and breeding well. At this writing, Oct. 23, the yard sounds like orange-blooming time. Speaking of that, elicits the remark that there will be a good orange-honey crop next spring, weather conditions favoring; for the time to build up for an early orange flow is in the fall, and bees are surely doing that now. See that all hives have at least five frames full of capped stores, or the equivalent, and is full of bees. Then you can sleep nights, or even go away on an automobile trip, and not worry; for you may be sure all will be well when the fragrant white petals of orange again scent the air.

* * *

The editors of bee papers have all along soundly warned nations protesting against rushing the crop off to some large mart,

and have urged producers to sell at home. In the present condition of the honey markets such advice is *apropos* and timely.

The following letter is from a man who has made beekeeping profitable, and home-marketing of honey one of the means toward success. It has such a genuine ring of common sense, and moreover it is so timely just now, that its insertion here will surely appeal. We quote in part:

Dear Sir:—Your letter was received in due time, and greatly appreciated. Honey in the big markets is so low in price I dreaded to ship there. I am, therefore, supplying my old customers and some new ones. I do not expect over 1000 gallons, and I think I can sell it all to my local trade. I am getting from \$1.25 to \$2.00 per gallon, according to quality and methods of packing. The first year I had bees I got 83 gallons from 14 colonies, and could not sell more than half of it. I fed the rest of it back to the bees in spring. So I decided to try my hand in educating the people in this vicinity to eat honey, and thus build up a market at home for my goods. I made quality and fair dealing my motto for seven years, and now I find that there is a steady increase in demand for my products. I think it is safe to say I shall be able to sell 1000 gallons in my local market, and I think that is pretty good when I have a neighbor five miles from me, with 200 colonies, one ten miles away with 100 colonies, and two more eight and ten miles away with from 30 to 40 colonies each. All are selling in the local market. Happily we do not trespass on each other's territory, and no confusion arises. First, I do my own grading, which is not nearly so rigidly done, and in dealing with the consumer I get my share of the sums that transportation companies and commission men and dealers make. To show you, I enclose a few orders I have received. If I had to sell to the Eastern markets, thru commission men, and stand for all losses in shipping, and all other disadvantages, I would go out of the business entirely.

We wish to commend the practice of the correspondent above quoted. It is a remarkable fact, that, while more colonies of bees are kept per square mile of territory in the southern states, more of the product is consumed right in that same territory than in any other portion of the United States. People are surely eating more honey. A high standard of quality, honest and fair methods of dealing, and "hustling" in the advertising, will infallibly bring results. It is not the big cities that need "more honey." It is the smaller towns and the communities.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



OUTDOOR VS. CELLAR WINTERING.

Which is better—wintering the bees on their summer stands or in the cellar? A beekeeper of considerable experience tells me that bees winter well on the south side of a building where the sun apparently does double duty. Do you advise this?

Well, hardly. Bees have been known to come out fairly well when left during winter on the sunny side of a building, but more often it results in a loss if not in weakened colonies in the spring. Still, this would be better than leaving the colonies on the north side of a building where the sun does not warm up the hives at all. On the sunny side the bees fly at rather frequent intervals during the winter. The heat produced by the sun on the hive and building, together with the bright light shining in at the entrance of the hive, causes the bees to fly when the air is still, even with the mercury in the shade as low as the freezing-point. If the ground is bare about the hives this bright sun makes it possible for the bees to fly with little if any loss, as the dark ground so absorbs the rays of the sun that the bees can rise in a very low temperature. Bright snow on the ground causes them to come out more than the bare ground.

I know it is claimed that bees wintered on their summer stands come out with greater vitality in the spring than those wintered in a cellar; but after an experience covering more than 40 years I have come to the conclusion that the loss in bees wintered out of doors is more than can be compensated by the extra vitality of those which come thru alive. With a loss several years that went above 75 to 80 per cent of the colonies left out, I have decided on cellar wintering for central New York, except three or four colonies for experiment.

The loss of colonies in outdoor wintering, tho this may be of first importance, was not all that led me to decide on cellar wintering. The amount of stores necessarily consumed when wintering on the summer stands above that where the colonies are wintered in the cellar has quite a little to do with the profit or loss in beekeeping. By experiments made by myself and other close observers it has been proven that less than one-half the stores are needed for cellar wintering than will be consumed during the average winter when the bees are left out. This comes from the amount of food that is necessary to be used for fuel to keep up the same warmth in the cluster in a freezing or a tem-

perature 30 degrees below zero, which obtains in the northern part of the United States and Canada. By weighing a certain number of hives in the fall, each hive containing colonies of as near the same strength as to bees as possible, then setting half of that number in the cellar and leaving the other half out, the difference as to the amount of stores consumed can be ascertained approximately—near enough for all practical purposes.

I made an experiment with ten colonies one winter. November 20, at the time the most of the bees were placed in the cellar, I weighed ten colonies for the sake of making a comparison of the amount of stores consumed by bees wintered out of doors with that consumed by those in the cellar. The five outdoors weighed as follows:

Wt. Nov. 20.	Wt. Apr. 19.	Loss in Wt.
54	36	18
67	48 $\frac{3}{4}$	18 $\frac{1}{4}$
46	29 $\frac{3}{4}$	16 $\frac{1}{4}$
74	51 $\frac{3}{4}$	22 $\frac{1}{4}$
63	47 $\frac{3}{4}$	15 $\frac{1}{4}$

Total consumption	90
Average	18

The colonies were weighed—hives, combs, frames, and all. It might have been a little more accurate if the stores could have been weighed separately; but for all practical purposes I think the experiment very fair.

Of the five put in the cellar, their weight and consumption of stores were as follows:

Wt. Nov. 20.	Wt. Apr. 19.	Loss in Wt.
55	47 $\frac{1}{4}$	7 $\frac{3}{4}$
53	48 $\frac{1}{4}$	9 $\frac{3}{4}$
62	54 $\frac{3}{4}$	7 $\frac{1}{4}$
49	42 $\frac{3}{4}$	6 $\frac{1}{4}$
63	55	8

Total consumption	39
Average	7 $\frac{4}{5}$

This shows a consumption of less than one-half by those wintered in the cellar as compared with those wintered outside. This, with the much greater security afforded, would seem a sufficiently strong incentive for the cellaring of bees during winter.

In former years I paid strict attention as to the temperature in the cellar, looking at the thermometer once or twice a day, but of late years the bees at the out-apiary are put in the cellar under the farmer's dwelling, and not once looked at or disturbed by myself during the whole winter. The cellar is used just as it always was. The entrances to the hives are turned toward the cellar wall next to the sides which have no windows and the windows are partially shaded. This plan might not work in all cellars, but has proven all right in this case for twenty-five years.

GENERAL CORRESPONDENCE

NATIONAL PROBLEMS

Article I.

BY PROFESSOR FRANCIS JAGER
President National Beekeepers' Association

There was a time not very long ago when our great national industries—railroads, steel, sugar, lumber, etc., were in their infancy and were known only under the name of “our infant industries.” They were struggling under foreign competition, domestic disorganization, lack of funds, low prices, and poor management. They were groping along a doubtful path toward success. At this critical time the government of the United States, ever alert for the ultimate success of home industries, reached forth its helping hand. By wise legislation and abundant appropriations and bonuses it raised these infants to sturdy youngsters who now are even veritable giants whom the government finds it difficult to manage. To encourage the railroad industry for instance, land grants were given to companies, amounting to a strip of land twenty miles wide along their whole right of way. Protective tariffs, easy credits, favorable banking laws, and our foreign consuls were engaged as nurses in behalf of these infant industries.

To extend to the struggling industries of the country all possible financial and moral help has become an established policy of our government.

As some industries get rich and self-supporting the paternal care of the government turns toward other infants — still young and struggling. Among these at present is our bee and honey industry.

It seems we have not yet realized how good a friend old Uncle Sam is to us. We have been straining our private energies and have been spending our limited funds to establish the honey industry on a solid footing. Spending time, energy, and money, talking, writing, organizing, attending conventions, etc., has achieved wonderful results. State organizations have been established, co-operative associations and marketing centers have sprung into existence, while methods of production of more and better honey have been devised.

But it has taken the beekeepers a long time to realize that there are limits to the enterprise of individuals. To place the honey industry, scattered throuth this immense continent, and consisting of number-

less small units, into a compact body endowed with life, power, and strength, we must have state and government aid. If we should feel inclined to boast of our organization and strength as developed at the present time we have only to contemplate the general advance of prices of all staple articles while honey has not advanced. On the contrary, the prices today, especially on extracted honey, are ridiculously low. This certainly should take away our self-conceit.

But ours is a contented profession. Just see. We say, “How much it costs to produce other foods, while honey costs practically nothing to produce! We can afford to sell it cheap,” etc. Excuses to cover our own weakness and inactivity! If the steel and coal magnates would live up to this argument of “no first cost,” the ore lands obtained for a song, the ore mined at a fraction of a dollar per ton, instead of complaining about our billion-dollar coal and steel trusts cutting juicy melons for their owners, we would be enjoying these gifts of nature at just as ridiculously low a price as honey is sold for today. But they are organized and that makes the difference.

In a few articles I wish to show what we need and how to get it.

The very first thing the beekeepers, both present and future, need is instructions. Beekeeping is a science, and a very deep and complicated science at that. Knowledge is power. It is also success and wealth. The ignorance of the average beekeeper is appalling, and the failure of the country to obtain better results is traceable directly to this ignorance. Yet the beekeepers are far from being unwilling to learn. The difficulty is that they have very small opportunities for learning. We have papers and periodicals and books—all good and thoro; but out of 800,000 beekeepers hardly 100,000 ever see any of them. Knowledge is such a wonderful treasure that everybody wants it, but nobody wants to fight for it. It must be brought to the beekeepers and presented to them with a bow and free of charge. Only the State and the Government could do that. The beginning was made tentatively a few years

ago; and since the Department of Agriculture in Washington has established a bureau of bee culture, and a country-wide extension service, one state after another has added beekeeping to the curriculum of its university instruction and extension work. The undertaking has been a great success. Yes! the beekeepers are willing to learn if they are made to see the necessity. We only need to refer to the crowds which turn up at conventions the country over to hear lectures of the Government extension men and other prominent beekeepers, or to the demand made upon our universities to send out men to speak on beekeeping, or to the number of students taking the beekeeping courses; but for such work money is needed—State and Government money—money collected from taxes which we pay, and for which we have a right to ask these things in return, and which we shall obtain by showing them that our demands are reasonable.

A few years ago some beekeepers attending the National Beekeepers' Association of North America were gathered in a hotel in Minneapolis in the small hours of the morning, talking about bee problems as usual. One of them made a remark at that time, that our States and Government have plenty of money to spend on experiments with every imaginable bug and weed, and that we ought to go after them in the interests of the bee and honey industry. "Yes," said another one, "put the stress on 'go after them.'" This "go after them" stuck in the mind of some of our Minnesota beekeepers. They talked and planned how to "go after it," and this is the way they did it. At the next Minnesota Beekeepers' Association meeting a legislative committee was organized. One or more beekeepers in every county of the state were put on the trail of candidates for the legislature, and they talked to these candidates bees and honey, and the necessity of appropriations for bee inspection, bee instruction, and bee exhibits. When the legislature assembled the committee found the legislature not only well posted on bees, but found quite a number of warm friends and influential supporters in both houses. Why, our difficulties and obstacles that looked like mountains were really only mole-hills. We secured a bee-inspection law with \$2000 appropriation, a division of bee culture at the University of Minnesota with \$6500, and premiums for honey exhibits at our big State Fair building, amounting to nearly \$1600.

What did it? A strong state organiza-

tion with competent officers and committees. When you talk to legislators you must talk convincingly and with an organization to back you. Alone—as an individual—you have as much show to obtain results as a solitary queen in a hive would have to start a colony.

To give you another instance, at the last National convention in Chicago it became apparent that the demand for service made on the Bureau of Bee Culture at Washington was so great the continent over that Dr. Phillips and his small staff could not even begin to do justice to the demand made on them. The southern states especially clamored for instructors and organizers. The matter was brought before the National convention, and at its instance Mr. Root and Mr. Pellett went to Washington to put their request before the Senate Finance Committee. Representative beekeepers of many states sent in their letters of request at the same time to their representatives. In a few days letters from New York, Ohio, Michigan, Illinois, Indiana, Iowa, Wisconsin, Minnesota, Dakota, Colorado, Missouri, Idaho, Wyoming, Montana, California, practically the whole country, began to pour into the Department of Agriculture and the Senate Committee. I can well imagine senators and representatives from all parts of the States going in and coming out of the committee rooms like bees from the hive, all asking for an appropriation for Dr. Phillips in the name of their constituents, backing up the request made by our committee. But my imagination may be wrong. The fact, however, that the sum of \$5000 was allowed to put two more men in the field is not imagination.

This shows how easily great results may be obtained by organization in behalf of a worthy cause. Do not say, "I don't get any benefit from the dollar I pay for my annual dues in the State or National organization." Such a view is narrow and wrong. The train of beekeeping is moving ahead, and you are necessarily moving with it whether you act as engineer or are paying your fare as a passenger, or are just taking a ride on the trucks.

By the way, Dr. Eric Millen, East Lansing, Michigan, is the Secretary of the National Beekeepers' Association, and he is selling tickets at \$1.50 to those who wish to ride in a Pullman coach. He would like to see the train run in several sections with enough paying passengers to put a fund in the hands of the National Beekeepers' Association of at least \$25,000.

St. Paul, Minn.



Ironweed, smartweed, and sunflowers along the St. John's River, Florida. The timber is three or four miles away.

A FEW FLORIDA HONEY-PLANTS ALONG THE ST. JOHN'S RIVER

BY C. H. CLUTE

Orange was a failure here last season.

The saw and cabbage palmetto were all right. The prairie yield starts before the cabbage-palmetto bloom is over. The prairie bloom lasts up to October or November. Last year it was a failure here on account of high water. If one had a launch a few miles would take the bees to bloom above the high water.

In December and January maple and willow yield pollen and honey. In February

and March, by moving, we have access on poor land to horse-wicker commonly called greasewood; also pennyroyal that gives a flow of 100 to 125 lbs. per colony if cold weather does not interfere.

Then by moving again we get orange, basswood, etc. In August the deertongue is in bloom. This yields well, giving a lot of nice honey; but it is found in only a few locations.

Sanford, Fla., July 22.



Looking down a "cutaway" road thru cabbage palmetto.



A beeyard in the distance under cabbage palmetto. The launch belongs to Mr. Olute, who at the time was just starting on a trip of 24 miles up to Lake Jessup, where the honey-flow is earlier.

DO BEEKEEPERS WANT A DISTRIBUTING ASSOCIATION?

BY G. P. STARK

After having had various experiences in the honey business I have come to the conclusion that very few really want or need a distributing organization. On the other hand, on reading the bee-journals many correspondents seem much interested.

Early in 1915 several leading beemen who had no particular personal need of nor interest in such an association, having been in the business long enough to establish a market for their own and their neighbors' prod-

uct, saw visions of the need, and of the great good that could be accomplished by such an institution. These beemen started the ball rolling by incorporating the National Honey-producers' Association, to be capitalized by beemen only. When it came to the cash, however, the beekeepers in general preferred "watchful waiting," and the burden therefore fell on the few.

Not even a peanut-stand can run without capital. Sometimes I wish that J. P. Mor-



Smartweed, wild sunflower, and ironweed along the river. The cabbage palmetto in the background is a mile and a half distant.

gan controlled the business, for it takes a lot of cash to pay for earloads of honey and bee-supplies; and unless the manager of the institution has a bank his usefulness will be limited, and big dividends will not be likely to accumulate.

A MELON STORY.

A small boy who was given a dime to buy a melon met a farmer who had two large melons in his wagon. "Say, mister," the boy asked, "how much do you want for one of those melons?"

"Well, kid, I sold all the rest for 25 cts. each; but if you want one I will let you have it for 15 cts., or both for a quarter."

"Couldn't you let me have one for a

dime?" the youngster asked hopefully; but the farmer drove on.

Soon meeting a bunch of big boys the farmer sold the two melons for a quarter. The small boy, not belonging to the "gang," had to be contented watching the big boys fight for the core.

Usually, this is just the way the beekeepers will do—let the jobbers come in and get the core and then cuss the manager. A co-operative concern must be supported by its members. They must co-operate in every way. There is very little danger of the manager looting the treasury if no money goes in to run the business.

Kansas City, Mo.

BEE - HIVE RECORDS

BY C. E. FOWLER

Intending to write about hive-records I looked up the indexes of the last two years of GLEANINGS and found so many articles on the subject that I felt discouraged; but after reading them over my courage came back.

On page 224, March 15, 1915, Doolittle gives a whole page on the subject, and winds up by saying that he likes a board best, using "brief signs," but does not say what the brief signs are. Then there is Richardson's plan, page 510, June 15. He has a slip for every hive, and every visit. This seems too clumsy altogether. The McIntyre system, page 711, Sept. 15, 1914, gives too little room for remarks, allowing only one line per hive. Many make the records on the tops and sides of hives; others merely use pins, nails, bricks, clods of earth, and painted strips of tin, most of which give no record whatever, but merely an indication of the present condition of the hive.

My idea of a record is something that will give the past history of the hive, set down at the time of each visit, that can be saved for years. The illustration shows my year's record for hive 47. The first column gives the date of my visit; the second, the condition of the queen, and the number of pounds

of bees. The figure 14 at the top of the column means that the queen was a 1914 queen; the *m* indicates the name of the breeder.

The second illustration is merely a key to the signs used in the queen column. 0 means no queen; 1, eggs; 2, larvæ; 3, capped; 4, hatching; 5, egg in queen-cell; 6, grub in queen-cell; 7, queen-cell capped; 8, queen hatched (virgin); 9, laying queen;

HIVE # 47 1916									
DATE	Queen	Brood	Honey	Supers	By Hives				
4/1	0	2	1	4	1	from #40 fr. # 48			
4/8	6	10	3	1	1	" " " "			
4/15	2	8	2	2		Warm			
4/22	6	5	12	4	2	Maple			
4/29	4	6	14	6	2	3	Peach		
5/6	1	8	16	2	2	14	3	Apple	
5/13	1	10	10	4	1	2	4	3	
5/20				1	2	5	2		

Brief Signs Used	
0	No Queen
1	Eggs
2	Larvae
3	Capped
4	Hatching
5	Eggs in Q. Cell
6	Larvae
7	Capped
8	Hatched (Virgin)
9	Laying Queen
X	Drone
W	Laying Worker
□	Put in
—	Taken Out
x	Excluder (4 Col.)
.	Shallow Super.

9 with a line thru it, drone-layer; W, laying workers; x, xx, xxx, quality of queen. A square means put in; therefore figure one inside a square means eggs given.

The third column of the record registers the frames of brood and honey (put in and out—remarks—where from).

The fourth column records the hives and



Exhibit of A. O. Raffington, of Hutchinson, at the Kansas State Fair. Mr. Raffington is a beginner in beekeeping, who has made good. The large bottles at the top contain honey vinegar

supers. In this column x means excluder. The dot under it means shallow super, while a dash signifies a comb-honey super.

Reading the record, I find that the first visit was made April 1. There was then no queen nor brood; full-depth hive. Eggs were given from No. 40, and two frames of brood from No. 48 (to see if queenless).

The second visit was April 8. On this date there was a queen-cell with grub in it. A laying queen was given from No. 40;

two frames brood were found, and four more added from No. 48. There were three frames of honey (queen marked xx).

The next visit was April 15. I found larvae and about 4 lbs. of bees, 8 frames of brood, 2 of honey. A full-depth hive was added on top, without any excluder.

On April 22 I found a grub in a queen-cell, 5 lbs. bees, 12 frames of brood, 4 of honey. The top hive and queen were put at the bottom; bottom hive and brood on top, with excluder between.

On April 29 four frames of brood were taken away, and an extracting-super added.

On May 6 a comb-honey super was added under an extracting-super.

On May 13 queen and brood shifted again. On the 15th the extracting-super was removed, comb-honey super added under No. 4 comb-honey super.

Hammon, N. J.

[This record could not be read by one not fully understanding the system; but if it is legible to Mr. Fowler, that is sufficient. The point is that what might be called a shorthand system may be used, taking almost no time to make the record, and yet giving a full and complete account of what was done. Doubtless the system would have to be modified to fit the particular needs of each individual beekeeper.—ED.]

HONEY EXHIBITS AT THE KANSAS STATE FAIR

BY J. P. LUCAS

The Kansas State fair at Hutchinson, Sept. 16 to 23, 1916, was a grand success in every respect. The beekeepers made some exceptionally fine displays. Dr. G. Bohrer, of Chase, Kansas, says it was the

largest and best ever held in the United States.

The honey exhibits occupied 1845 square feet of space. There were displays from half a dozen Kansas counties—J. A. Nin-

ninger, of Nickerson; J. P. Lucas, of Topeka; The Cloverdale Apiary, of Mount Hope; F. E. Clark, of Nickerson; W. T. Measer, of Hutchinson; Dr. A. D. Roffington, of Hutchinson; Jas. Gilbert, of Harveyville; M. E. Andrews, of Larned, and Mrs. M. E. Andrews, of Larned. In all there were 3425 lbs. of extracted honey; 3375 of comb honey; 100 pounds of beeswax; 25 gallons of honey vinegar. There were also two displays of bee supplies, and 18 observation hives. A better showing could have been made

if there had been more space. Next year we expect to have a new beehouse, the Horticultural Society being in the same building.

A meeting was called by the beekeepers, and "The Southwestern Beekeepers' Association" organized. This is the first organization of this kind in this part of the

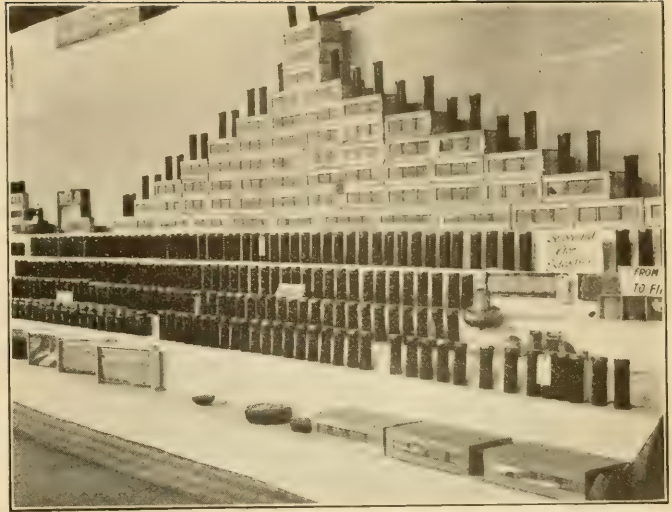
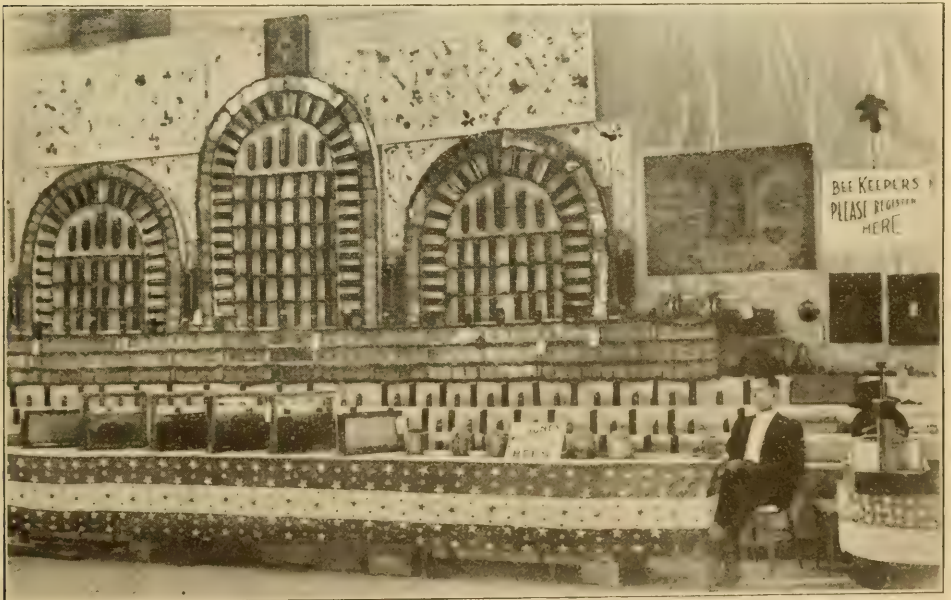


Exhibit of C. E. Clark, of Nickerson, Kan. Mr. Clark is another beginner, and one who means business. He thinks a new building for honey will be necessary next year.

state. Twelve men became charter members. It is their desire to boost the interest of the beekeepers, and they are putting up a hard fight for a new building. They have pointed out the fact that this display was far better than the Topeka beekeepers had, as Topeka prizes are so small they can not



The banner display at the Kansas State Fair. This exhibit was put up by J. A. Ninninger, of Nickerson, Kan. Mr. Ninninger is not afraid to spend money and hard work on an exhibit. Note the pressed honey-plants, the honey, bees, etc. At the left of the exhibit (not shown in the picture) he had a log cabin made of honey.

afford to put up a show. If Topeka will pay better prizes they will have better shows. This organization is to work in harmony with the Kansas Beekeepers' Association. Dr. A. D. Roffington, of Hutchinson, was chosen president; J. A. Nenninger, of Nickerson, secretary, and J. L. Pelham, of Hutchinson, treasurer.

The *Hutchinson Daily Gazette* says:

Fruit canned with honey exhibited by J.

P. Lucas, of Topeka, is well worth the time of every housewife to visit. He has on exhibit a number of fruits canned with honey. He has kept some of these jars since 1910, and has shown them every year since. All are in good condition. Among the canned dainties are corn, peaches, pears, cherries, red raspberries, plums, plum butter, and strawberries. Mr. Lucas also has samples of honey made from 28 different flowers.

Topeka, Kas.

IS THIS FAILURE?

BY CLOSSON SCOTT

For six or seven years I have been an enthusiastic beekeeper. I have bought most of the textbooks, read most of the journals, spent two years with a professional, and even traveled nearly a thousand miles looking for a new location. But lately I have had my doubts about continuing in the business. In this article I expect to give a little

for more bees, and then still more, and now am somewhat in doubt as to whether I have made enough of a failure to quit or not. The "some more" bees amount to only about sixty colonies; but as there has been no profit, and as I can't afford to keep bees for pleasure, they must be sold or given away or moved to a better location.



Exhibit of J. P. Lucas, of Topeka. Mr. Lucas was handicapped by reason of living so far away. As usual, his fruit canned with honey was a great surprise to the ladies. He had some put up six years ago. He also had 28 kinds of honey made from different honey-plants.

advice to beginners, and hope to get some more from the real experts.

I started beekeeping in the usual way. I hived a swarm, got curious about the myriads of little insects, bought a book, then another, subscribed for *GLEANINGS*, used patent hives and then scrapped them, worked

season was almost a complete failure, and I fed for winter with the thought that I would make it all back next year. But next year came; and when the winter stores were gone I had to get out the feeders and keep them going till fall. About that time our inspector came to look over the bees. They

The first two years I had from four to nine colonies. Then winter cut the number to one. I spent that season with a large producer, and learned much about wintering and other subjects of value to me. The next year I went back as one of the assistants, instead of being a mere student, at an increase in salary. The next year I thought I knew enough to start for myself, as I had helped handle 125,000 lbs. of honey besides seeing a few other beekeepers, and picking up quite a few ideas. Accordingly I purchased about thirty-five colonies and started on the home farm. We were living in town at the time; but I rode out on a bicycle to tend the bees. The

were free from disease, but I was discouraged any way, and told him so. "Stick to your bees," he said, and I thought it over and decided to stick. I even persuaded a friend to make plans to go in with me, and I started out to look for a new location. I found one too, a good one, and I came home bubbling over with enthusiasm. We were just going up there and clean up a fortune in about two years, and then we could spend the rest of our lives telling about it.

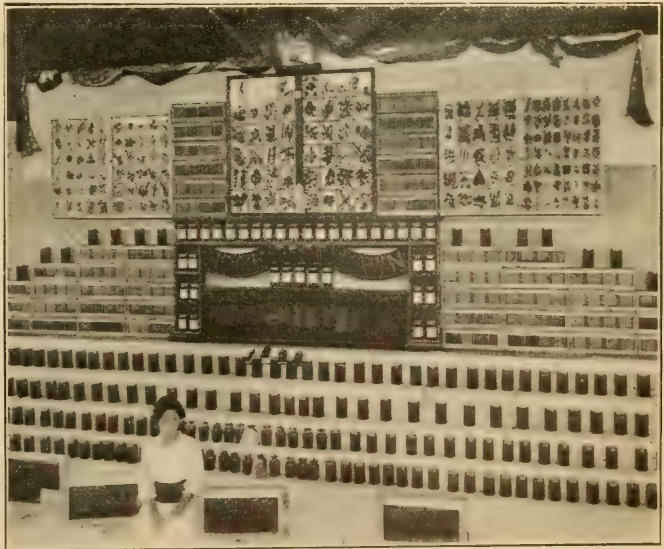
During part of the time I was buying my bees. As I said before we lived in town. But the renter didn't do very well, and so we moved back to the farm. My brother and I both had a little agricultural training, and so we took hold of things and began to work out some methods of our own. The farm hadn't been paying very well; but since we started "book-farming" things look much more promising. It now appears that if we stick together the old home farm will come back to what it used to be. But it is difficult to handle bees and a farm at the same time. Anyway, this is a poor location for bees, and I felt that it would be a waste of time to keep them here any longer. As it would be impossible to tend the bees if I should move them, and farm too, it became necessary to give up one or the other. At this time I got to figuring, and suddenly got cold feet when I saw what it would be necessary to make in order to come out even. I suppose cold feet is a "catching" malady; for in the next letter from my friend there were plain indications that he, too, was afflicted, and we agreed to quit before beginning.

Right here I will say that he has made more from his bees than I, and lost more, too. He lost about sixty colonies one winter—nearly all he had—and he was to ship the empty hives to me to be filled with bees. But he is under the necessity of making a living the same as I, and can't afford to leave a sure position for one as uncertain as beekeeping has proved to be with us. I know that, if some of our rich men had never taken a chance, they would still be poor; but if some of

our poor men hadn't taken a chance they would still be rich. As it is with us we are very doubtful about taking the chance.

I have learned a few things that will be valuable to me if I go on or quit, either one, so my time has not been entirely wasted. I have been interested in other lines of agriculture, and have noticed that there is nearly always some one yelling against education in certain lines for fear of overproduction. The fear of overproduction does not frighten me in the least. I have yet to see the time when I couldn't sell many times as much honey as I could produce, and at a good price too. I know there are hundreds of localities where honey is as scarce as it is here. When we get a greater production of honey, these places will be supplied with a good quality of honey, and the price will not drop because of overproduction.

There is one thing that I shall remember for a long time. That is this: No amount of good management will enable the bees to gather honey where there is none. In other words, if you would have success you must



Display by W. I. Measer. Mr. Measer is an old standby who always puts up a creditable exhibit. He is a live wire every time.

have a good location. I would rather face foul brood any time than try to keep bees in a poor location, and I know what foul brood is too. I don't think I made a worse mistake than starting in a poor location. However, one can't tell what the location will do without trying it.

Perhaps some one will ask if I would advise against beekeeping for a living. I



R. F. Holtermann and his helpers for 1916 standing in a field of alsike clover in full bloom.

can't say I would. I can't say I would advise any one to start in a small way rather than with a large number of colonies. A person truly interested will find out the proper manipulations and use them. I would advise a year with a large producer, if it is at all possible, and also work at a school of apiculture. I would advise standard-sized hives and simple fixtures, not that they are better, but because they are interchangeable with others you buy. Still, it is not for me to advise too much, as I ought first to make a success of bees. What

bothers me is not what is past but what I shall do in the future. Possibly this locality will yield better in the future. I may be too easily discouraged. Farming is sure to pay. Wouldn't it be better to take the sure thing?

I gave up some very desirable things to get money to buy bees. I have spent six years of the best part of my life preparing to care for them. I spent a little sum of money that looks large now it is gone. Shall I go on? Shall I take a chance? I think I'll take a chance.

Newton Falls, O.

SUGGESTED WAYS TO DETERMINE HOW EUROPEAN FOUL BROOD SPREADS

BY R. F. HOLTERMANN

It seems strange that European foul brood, which has worked such terrible havoc, and with which beekeepers have come in contact so long, should be such a mystery. It is taken for granted that no one is going to be foolish enough to say that European foul brood is a boon to the country simply because it is likely to wipe out the smaller beekeepers. No objection can be found to an honest representation of the industry; but I have seen many statements in the press in our own country, giving the very large amount of honey secured from colonies. Those who were instrumental in cir-

culating these reports however were not very energetic in telling of failures of crops or of the many instances where men engaged in the business, owing to incompetence, inexperience, unfavorable environment, or adverse season, lost all they invested, nor even how many in 1914 not only did not make a dollar, but were obliged to spend a lot of money to put their bees in shape for the following winter.

Recently I have given some thought to the problem of finding out how European foul brood spreads. It appears to be a somewhat intricate question because of the

rapid spread of the disease and the wide range of territory over which it roams in a short time. To find out the way in which European foul brood spreads I would conduct some experiments under the following conditions, adding to them any suggestions of value that could be found, and eliminating, before undertaking the work, any which were deemed valueless.

1. Establish an apiary in an isolated section, letting the bees in each hive have a very large entrance. This entrance could be obtained by having a bottom-board with a deep space. The apiary should stand on a large sheltered pond of water. The object of the water under the hives would be to make it unlikely that the dead larvæ which the bees clean out could ever blow into the entrances of other hives.

2. Feed the bees extensively in the open. If necessary I would take them into a comparatively desert country where their only source of supply would be the feeders common to them all. If, under such conditions, the disease spread abnormally we would be justified in believing that the disease spreads thru the germs from bees of diseased colonies being left on the blossoms and after-

ward carried home by the bees out of healthy colonies visiting the blossoms.

3. Have enough colonies in a section where no natural stores could be gathered, thus eliminating the danger of common ground visited by the bees as in No. 2 and supply them with combs of honey and pollen, giving it to them in each hive. Or the bees could be fed thru individual feeders placed on each hive. The colonies should be set fairly close together, so if the disease is spread by the dead larvæ cleaned out by the bees there would be a good chance for it to get into hives in the vicinity.

4. Take queens from badly diseased colonies and introduce them with the least possible delay to healthy stocks, and take other queens; and, if possible (and I think it is), dip all but their heads in some disinfectant and note the result.

A careful work carried out along the above lines should give us some information of value. I am strongly of the opinion that worker bees, so far as it lies in our power, should not have the chance to clean diseased larvæ out of the cells. Such work *must* result in the spread of the disease.

Brantford, Canada.

A YEAR WITH POUND PACKAGES OF BEES

BY KENNETH HAWKINS.

After treating all colonies in my home yard in the fall of 1914 for American foul brood, investigation in the spring of 1915 showed that I had seven breeding queens left, but that every colony that remained was again badly infected with American foul brood. Seven one-pound packages of bees were ordered from Texas to arrive here by May 1, and they were given the queens, being loosed on full sheets of foundation, with fruit bloom in full swing.

The bees had no more than arrived when the warm weather of April went somewhere, fruit-bloom froze altogether, days followed when it was impossible for the bees to get more than a few hours' flight, and there was nothing to feed on. They were fed daily a pint of warm sugar syrup, half and half, a super being put on, and a newspaper spread over the frames with a small hole cut directly over the cluster for the pepperbox feeder.

As soon as the bees had begun to build up a little, signs of American foul brood appeared again; and knowing that there must yet be a source of infection, the Illinois inspector, A. L. Kildow, was summoned. He found an apiary within a mile with every

colony but two dead with American foul brood, all the rest, about 18 colonies, being exposed for robbing. This was prevented only in a measure by the entrances being practically stopped up with dead bees and by the cold weather. These colonies were burned.

This infection necessitated treatment of the nuclei from the pound packages, such as shaking, giving full sheets again, and feeding. It was more than discouraging to see those bright new combs and sugar stores go into the fire. Lots of queen-breeders advertise queens proof against "foul brood," making no distinction in the advertising between American and European. Any queen-breeder who advertises in this way is a fake, as there never existed a queen the introduction of which brought about conditions proof against American foul brood. Any good Italian is some proof against European, and the purer the Italian the greater the insurance.

Now the weather turned so cold again that two of the packages, after treatment, failed to survive the weather, leaving five. Seven more were ordered, with queens, and the feeding of syrup continued as long as

the cold continued. Altho Dutch clover was abundant, it gave only a slow flow, no surplus, but just the thing for the 12 packages to build up on, which they proceeded to do with a vim.

About July 1, 14 more packages were received, to be used in forming nuclei, as this yard was intended for queen-rearing, containing as it did my best breeders selected from the best honey-gatherers for years. The packages were each immersed in a pail of water, to wet the bees and prevent their flying, then one screen was removed, and all dumped into a hive with a screen top. Virgin queens were given each nucleus, and the nucleus bees supplied from the packages. They were put on full sheets of foundation, four frames to the hive, each frame half Hoffman size. The bees were fed a candy such as is used in queen-cages the first day, but the honey-flow from sweet clover, just starting, made further feeding unnecessary. About 60 nuclei were started this way.

Brood and bees were constantly removed after July 15 from the colonies started early with packages, usually two frames per week. These were full Hoffman size, as more nuclei were constantly formed, and some bees and brood were needed to bolster up nuclei where the first queens given failed to return after the mating, on account of the continued rain. No further feeding was necessary for the colonies or nuclei, and the honey-flow continued slow but sure until frost.

From this yard several hundred queens were shipped last year, most of them as fine as I ever produced, being daughters of my breeders saved in the spring, and the drones from the remaining 11 breeder colonies.

One of these strongest packages was relieved of its queen about July 1, and was



White clematis that climbed from a trellis on to a tree and shot up to the unusual height of 40 feet. During the blossoming period in July and August the bees swarmed all over it.—From A. T. Cope-land, Olalla, Wash.

used continuously afterward for starting cells, a frame of young bees being shaken before the hive each week.

Plainfield, Ill.

THE SAND VETCH AS A HONEY-PLANT

BY EDWIN TRINDER

The honey from the sand vetch is mild in flavor, but it has a dark-amber color. As the vetch blossoms at the same time as white clover and alsike, the bees mix the two kinds of honey together, thus, of course, spoiling the color of the white honey.

The vetch has been grown here on sandy soil for the past few years, but the bees have never worked on it until recently. During the last season especially, I think that there was so much rain and cold weather that they could not go very far away. The vetch was close to the apiary, and for that reason they could get to it. The white clover and alsike are further away. The honey, however, is

so mild that many of our customers think that it improves the clover flavor.

We are located three miles from Lake Erie, near Port Dover, the summer resort. The honey crops have been only fair since 1913. We run for extracted honey and depend on buckwheat and goldenrod for the main part of our surplus. We winter the bees altogether on buckwheat honey.

I shall soon be 77 years of age, but am in good health. I have been president of the Norfolk Beekeepers' Association for fourteen years. The Association has been steadily growing. Now we have over 50 members.

Simeon, Ont., Can.

A BOY BEEKEEPER WHO HAS ALREADY MADE A SUCCESS

BY HUBER ROOT

It gives one a thrill to meet his namesake. I am not so sure that the great naturalist Francois Huber would have experienced any great thrill if he could have known of me; but I am speaking on general principles. Years ago it gave me a thrill to learn that a baby boy away off in Ontario had been named after me. It gave me another thrill when I learned not so very long ago that this boy had become a beekeeper. Now I am experiencing a third thrill, which I admit is mixed somewhat with envy, to know that this boy, now a man grown, has become a very successful beekeeper, and it has been a very great pleasure to meet him and to know him.

Five years ago Huber Burke began his beekeeping career with two colonies of bees. Without having bought any bees since that time he had sixty colonies this year, spring count, from which he secured an average of 230 pounds of extracted honey per colony, his best colony producing over 400 pounds; 10,500 pounds was fine white-clover honey, and the rest, 3300 pounds, was buckwheat. A year or so ago with twenty colonies, spring count, he increased to forty colonies and secured almost 100 pounds per colony.

I feel like congratulating this young man, not because he is named after me or after anybody else, but because he has made good in his chosen profession. Has any one in five years' time been able to make a better record?



Huber Burke, a successful and rising young beekeeper of Ontario.

AN EXTENSIVE BEEKEEPER AND POULTRYMAN

BY R. A. MORRISON

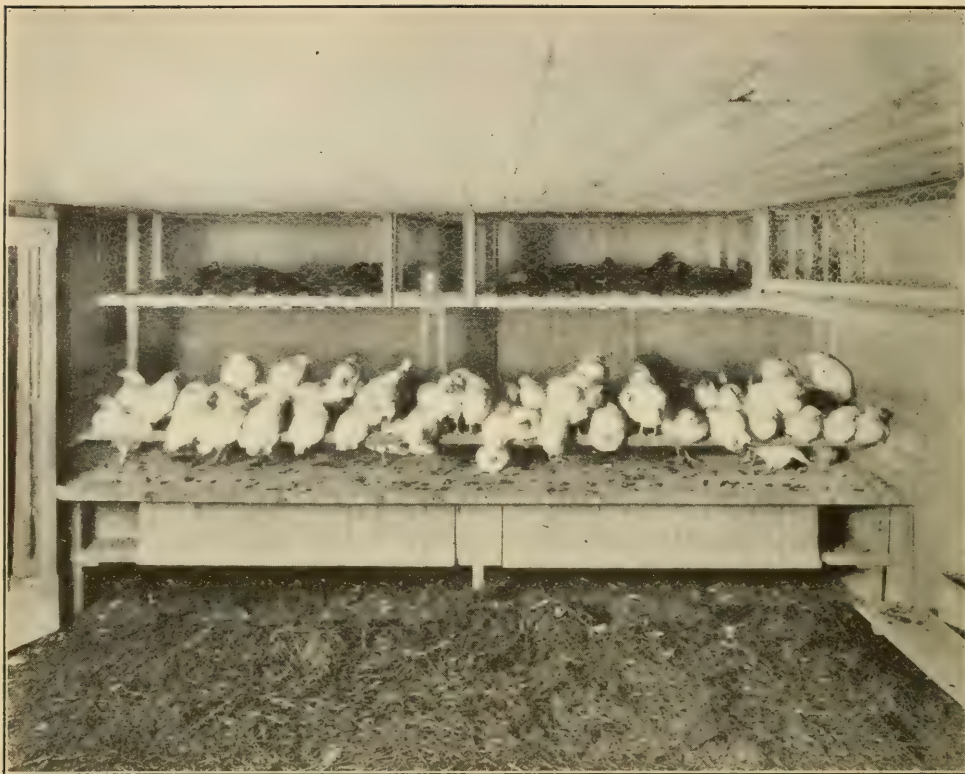
The picture shows my poultry-plant. This pen was run as an experiment for close confinement, made up of 60 single-comb White Leghorn pullets hatched May 21, 1911. They were shut up in winter quarters on the following 15th of November in a room 14x14 feet square.

They were never let out of doors nor given any change from that time until they had to be removed in November, 1912, to make room for sixty 1912 pullets.

Their egg-laying record began Jan. 1, 1912. That day's record was 33 eggs. For the following ten months their record was:

January, 1093; February, 1123; March, 1302; April, 1346; May, 1307; June, 1141; July, 827; August, 956; September, 662; October, 116. For the ten months, 9873—an average per hen of 164½ eggs, or 822¾ dozen. The average price per dozen for the ten months was 30½ cents, a total of \$251.06. The cost of food per hen was \$1.48, or \$88.80 for the 60 hens, which left a net profit of \$162.20; for each hen, \$2.70½.

This photo was taken by flashlight on the evening of Aug. 31, after they had gone to roost. Notice that some of them are asleep,



White Leghorn pullets in confinement—an experimental pen belonging to the poultry ranch managed by R. A. Morrison, a 200-colony beekeeper.

others have waked up, and are intent on watching the photographers, while the most timid ones have left their roosts and hidden themselves away in the dark shadows under the roosts. Also note their worn tails and large combs; the worn and dilapidated tails come from two causes—wearing in the

nest-boxes, and moulting; the large combs, from careful breeding. In this condition they laid 30 eggs on this day, Aug. 31.

Cataraqui, Ont.

[Mr. Morrison is also an extensive beekeeper. A picture of his apiary appeared on our Sept. 15 cover.—Ed.]

THE LAND FLOWING WITH MILK AND HONEY

BY PH. J. BALDENSBERGER

When the Hebrews, after more than forty years' suffering in the barren wilderness, approached the more fertile country of Canaan they very much resembled the modern Tayaha and Tarabeen—Bedouin tribes who delight themselves with the products of the land of promise. Sour milk and *dabash* are the two great staple articles of the nomad; and southern and eastern Palestine have changed but little in manners and customs, products and language, since the days of the Perizzites and the Amalekites. Since the Egyptian revolution of the 18th century, the passage of Bonaparte, and the last upheaval in

1883, firearms have been introduced into the peninsula of Sinai; yet a Bedouin or a "fella" "bows" his rifle instead of shooting it. The bow is an ancient weapon, while the rifle is comparatively new. When a weary Bedouin or a tired "fella" arrives at some settlement a wooden bowl of *labban*, or wholesome sour milk, is presented to him. This same *halb* was promised to the weary Hebrews in the desert. Fresh milk is never presented, and to some extent it is considered unwholesome. The *labban* is milk which has undergone a slight fermentation, and is to be found in every house or tent where sheep and goats are found.

Compared with the arid and sandy region of Sinai, Canaan was and is yet a very desirable country. Bread is to be found everywhere in Palestine. Labban is almost a necessity and a sweet dish—a kind of luxury. Hebron, in the south, is the great country of vineyards, and *dibs* is prepared from the juice of grapes. Joshua and Caleb cut off the luxuriant grapes from Eshcol; and if now the modern travelers inquire what is done with the grapes there, “*dibs*” will be the answer. *Dibs* is the name given to grape-treacle in all the south.

The Bible student reads the Bible as translated by Europeans in the 14th and 15th centuries, and by translators who knew Hebrew, Greek, and Latin, but who did not know Palestine nor the innumerable shades of meaning in their language. They could not distinguish between milk and sour milk nor between *dibs* and honey; and as they certainly knew nothing of sour milk and *dibs* they simply translated *eret zabath halab u'debash* by “a land flowing with milk and honey,” as in Exodus 3:8.

Very late in their national history the Hebrews began to make a distinction between grape honey and comb honey. Jonathan was probably the first Hebrew who tasted comb honey. In his memorable pursuit of the Philistines he saw the overturned booty, and with his staff picked up a piece of comb honey, *m'at dabash*, found in the spoil taken from the enemy—see I. Sam. 14:29. The text is very clear here. The Hebrew *dabash* and Arabic *dibs* are one and the same article. *Dibs* is made by crushing the grapes in rock-cut presses which are hewn out in the vineyards. Workers and vintners are allowed to suck the flowing juice as it runs down from the rock into the jar below. The Moslems, like the ancient Rechabites of Jeremiah 35, are not allowed to drink any strong drink. “Ye shall drink no wine, neither ye nor your sons for ever.” The grapes in all Islam are transformed into *dibs* as it was with the Perizzites. The pressing in the rocks, the flowing into the jar, and the sucking of the *dabash* from the rocks are mentioned in Deuteronomy 32:13, in Job 20:17, and in Psalm 81:16; and the rocks alone prove the sweet to have been *dibs* and not *assal*, the Arabic name for honey taken from the bees. That bee honey was not meant by the writers of sacred history, every modern beekeeper will understand at once for several reasons: 1. Because honey remains in the comb if left alone, and will remain thus for years, even in the hottest part of Palestine, as the clefts of rocks are always cool—at least where bees have selected their dwelling.

2. Should the honey flow, bees would swarm around and become so aggressive that there would hardly be a beekeeper audacious enough to put his lips to the rocks and risk the furious stings of the robbers.

Dibs easily ferments when it is a few months old; and the prudent Arabs hurry the sale of the small jars, containing about 6 lbs. each, at the price of 40 cents—for so it was in the days of my youth, during the '80's.

By the end of January most *dibs* is sold in Hebron and its environs. Jerusalem and Bethlehem grocers may keep some in big jars and cool places till Easter. Later on, the *dibs* may ferment. This explains why the Hebrew legislator warns the people not to bring *dabosh*. Offerings made by fire were to have a sweet savor. “No meal-offerings which ye shall offer unto the Lord shall be made with leaven, for ye shall burn no leaven, nor any *dabash* as an offering”—Leviticus 2:9-11.

In spring *dibs* begins to ferment, and is simply thrown away when the fermentation is irremediable. The Philistines, who originated in the islands, were more advanced in agricultural knowledge as well as in other industries. Then the Hebrew-Bedouin were obliged to have their weapons made by the Philistines; and beekeeping, no doubt, was not only known to the Philistines exclusively, but they kept their processes secret to some extent.

In this unchanging East, beekeeping still flourishes in the Philistine plains. It was introduced into the mountains of Judah very much later; at all events, the author of Proverbs knew honeycomb which he presented to his Edomite wife, altho he knew nothing about bees themselves. He had wisdom and understanding (Proverbs 1:2), and he speaks of “four things that be little upon earth, but they are exceeding wise. The ants are a people not strong, yet they provide their meat in the summer. The conies (hares) are but a feeble folk, yet make they their houses in the rocks. The locusts have no king, yet go they forth all of them by bands. The spider works with her hands, yet she lives in kings' palaces.”—Proverbs 30:24-28. Very likely had Solomon seen bees he would have mentioned them in that place. The Arabs distinguish *dibs*, the grape-treacle, from *assal*, the honey of bees. The Hebrews of old had only one name for the sweet sticky matter, and they had only one name for hornets and bees—if they ever knew them. In later years honey was introduced from Syria or Assyria, and Egypt, and a name was given to distinguish it from grape-treacle—

nafath dabash or *nafath feem*—Proverbs 5:3, 16:24, 24:13, 27:7; Canticles 4:11.

The hornets, *dabareem*, only were known, and even in the case of Samson's riddle he evidently confounds hornets and bees, as the modern peasant in Europe will say bees or wasps without distinction. As the haunts of Samson were in the land of the Philistines he may have seen bees; but he could not distinguish them from hornets, and he calls them by the same name. We lived some twelve years about Timnath, Ekron, and the borders of the tribe of Dan, and could judge as beekeepers how erroneous the statement must have been. Jackals abounded by the hundreds; and when an animal dies it is laid beside the road and jackals feed on the carcass; yet for several weeks the skeleton is not clean enough to receive bees. Hornets, which are carnivorous, swarm about carcasses by the hundreds; and as the *dabareem* and bees had one name the confusion was easy, and he brought the riddle to the Timnathites.

The Arabs call the hornets *dabaheer*, or *dabur* in the singular. As the hornets are very voracious they build their nests under ground or under the cactus hedges about Ramleh and Jaffa, where they find plenty of food—carcasses by the wayside, and fruits, or bees when they can get at them. We lost dozens of colonies before we knew how to fight the hornets, and later found the only remedy possible was to remove the hives to desolate places where neither fruit nor carcasses abound.

The passages in the Old Testament, tho not absolutely against honey of bees, rather prove the minor article to have been meant. Among the articles brought to David in Mahanaim for his retreating army we find wheat, barley, beans, lentiles, butter, and dabash—II. Samuel 17:29. No doubt the same articles were used by the Turco-German army on their march toward Egypt in 1914 and 1915—at all events about Hebron. *Dibs* was put before the soldiers always, not honey, which, being rarer, was reserved for the staff and pashas.

Ezekiel mentions the articles exported to Tyre and Sidon from the land of Israel—wheat and balsam, *dabash* and oil—Ezekiel 27:17. The quantities exported indicate the abundant and inferior article to be meant. Vineyards were known all over the country, and the vine and the fig-tree are mentioned everywhere, while beehives were altogether unknown, and had no name in ancient Hebrew.

Bees are well known to the Arabs by the name of *nahel*, and swarms are called *tard*.

The beekeeper is a *nahal*, and a beekeep-

ing village is the beekeeper's *nahalin*. *Nahel* is also used in some places for a swarm, meaning a young bee. This shows the development of the word *nahel*, a bee, derived from *nah*, sighing, distinguishing it from *dabur*, one who flees, blows, etc.

After the Captivity, beekeeping was very possibly introduced by the returning Jews or Egyptian and Assyrian settlers. The prophet Isaiah, inspired by some who had seen bees in their native lands, says, "And it shall come to pass in that day that the Lord shall hiss for the fly (*v'zebub*) that is in the uttermost part of the rivers of Egypt, and for the bee (*v'la'deborah*) that is in the land of Assyria, and *they shall come* and shall rest all of them in the desolate valleys, and in the holes of the rocks, and upon all shrubs, and upon all bushes"—Isaiah 7:18, 19. Struck by the curious sight of swarms hanging on shrubs and bushes in Egypt and Assyria, or taking possession of clefts in the rocks, the returning captives foresaw the days when the same strange sight would be seen in Palestine, as many other foreign commodities had been introduced by them.

Modern Jews have lost contact with their original country, having been separated almost entirely from it for at least fifteen centuries, and it is rather with modern fellahin that the old manners and customs and even religious rites of the Hebrews are still found. Islam was founded partially on Judaism and partially on Christianity, and therefore they have preserved Moses and the Mosaic law, and all the prophets of the Old Testament as well as Jesus (*Esa*), the son of the virgin Mary, adapting them to Arabic ways.

Nice, France.

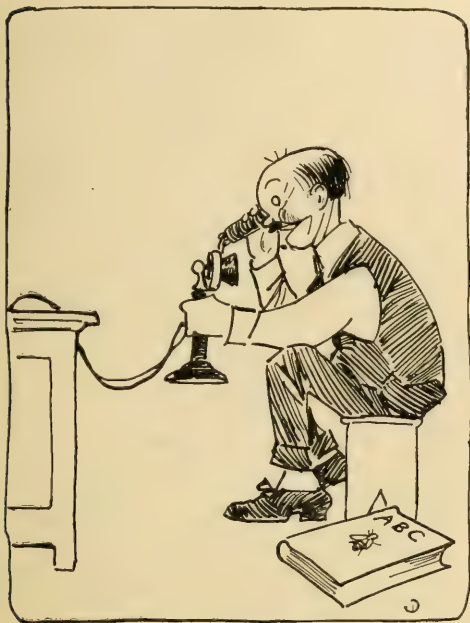
Probably the Odor of Newly Gathered Aster Honey.

While working about some hives here in Columbus, since the University opened this fall, I noticed on many occasions that the hives had a very sour smell. I could often smell this odor when standing from ten to fifteen feet away from the hives, and at other times it was not perceptible until I opened the hives. I noticed the same odor was present about some hives I voluntarily inspected in a small town south of Columbus last week. Can you explain what this odor indicates, or what circumstances or combination of conditions cause it?

Columbus, O., Oct. 17. John Eckert.

[We should judge from what you write that your bees have been working upon the asters. There is usually a peculiar odor when they are working on aster bloom. Some people call it sour, some call it a rather offensive odor.—Ed.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

"What's that?" "Yes, this is Gleanings."
 "What's the proper way to introduce a queen?"
 "It all depends on whose queen it is. If it's your queen, you say, 'Permit me; etc., just like that; but if it is a bee you'd better write to Doolittle or Miller. They don't do it that way."

NOVEMBER THOUGHTS

BY GRACE ALLEN

Poor frosted blossoms, you must miss
 The grace and beauty of those bowers
 That spring laid here along the hills
 And gladdened with her brimming showers!
 Yet, no; you are not even ghosts
 Of all the myriad April flowers—
 They are gone—
 Forever.

Dear morning-hours, how chill and slow
 You creep from out the eastern sky!
 More swift you came when from our hill
 We saw June dawning—he and I!
 Yet you are not the morning-hours
 That found us there and passed us by—
 They are gone—
 Forever.

My bees, how quiet you are grown!
 My heart recalls your springtime way—
 How swift you flashed!—how gay and sweet
 You made the blossomed plum one day!
 Yet you, alas, are not the bees
 That hummed so witchingly in May—
 They are gone—
 Forever.

Where Else Could the Bees Have Got the Black Queen?

By chance I caught a swarm of black bees, and I put them in a box. I keep my bees in close rows with all queens clipped. This black colony was between two golden Italian colonies. In the spring the one yellow colony became queenless, and in due time I had a young queen in that hive, as black as a crow, which, later on, produced hybrid bees. If that was not a case of those queenless Italians stealing an egg from the black colony, I should like to hear from some one better versed.

Grand Valley, Pa. Geo. C. Morrison.

[A virgin from the black colony might by mistake have gone into a hive of the goldens. If so she might kill the old queen and take possession.—Ed.]

How to Get Rid of the Cross Ones.

Apiarists are troubled sometimes by bees following them angrily while they are working and opening the hives. This is a very common occurrence; but no one tells how to be delivered of the annoyance.

My plan is this: Uncover the smoker; work the bellows until there is a good flame, and keep it blowing, keeping up a sort of circular motion. The movement and flying of the flames attracts the bees, which, by crossing against the flame, or jumping inside the smoker, disappear completely, and leave you free to do your work. I repeat the performance whenever two or three come to bother again.

I have used this plan for years with the greatest success.

C. M. Carmona.
 San Rafael, Trinidad, B. W. I.

An Uncapping-can Made of a Barrel.

One day, while extracting, my uncapping-can filled up before I was thru. I had a 32-gallon barrel that I had formerly used for storing honey. I took out the head, cleaned it out thoroly, and nailed a block 5 inches high in the center of the bottom.

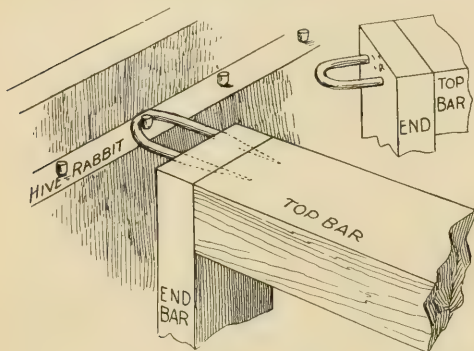
I then cut a piece of aluminum-coated wire cloth a little larger in diameter than the barrel and bent up the edge all around so as to form it in a shape similar to a pie-pan. This I tacked to the inside of the barrel, 5 inches from the bottom, putting a tack every 2 to 3 inches. The center of the wire cloth then rested on the block nailed to the bottom.

I bored a 1½-inch hole just above the bottom of the barrel and made a spigot to fit it. A stick nailed across the top of the barrel, with a nail driven thru from below, completed the arrangement.

The whole thing did not take much longer to make than to tell about it, and it worked as well as any capping-can I ever used.

When I withdrew the plug the honey ran out so clear and free from wax particles that it was almost unnecessary to strain it.

Rhineland, Mo. S. E. Miller.



Staple-supported frame as used by A. K. Clement, Brunswick, O. Instead of the spacing-pins in the rabbit Mr. Clement also uses spacing staples on the end-bars in the regular way.

[Almost exactly this kind of frame was devised years ago, with this difference, that it did not make use of metal pegs at intervals to regulate the spacing of the frames. The objection to a staple projection is the danger of splitting the end-bars and top-bars either while they are inserted or while in use.

The arrangement would not be very satisfactory where hives are moved about from yard to yard.—Ed.]

Should This Queen Lose Her Head?

On p. 701, Sept. 1, Dr. Miller says his best layer in No. 81 is marked for decapitation because her bees do not deliver the goods. Is it not a fact that the extra honey and pollen required to feed and rear these extra numbers of bees would make a fair surplus with a less prolific queen? Would it not be a fair test, doctor, to balance that hive at night with your best honey-gatherers; then decide if decapitation is in order? I have just such a queen, and I use her as a helper to my weaker colonies, and would not think of decapitation as long as she can lay eggs at the clip she is now going unless her bees were entirely worthless as honey-gatherers, which cannot be the case, and care for such fertility.

Indianapolis, Ind. J. F. Kight.

Did the Galvanizing Make the Trouble?

The following experience may be worth something to many who are beginning in beekeeping. A citizen of this section failed to feed his bees as much last fall as he thought they might need; and when January came he became uneasy about them and went to a yard and stirred a lot of sugar into water, mixing it in a galvanized-iron wash-tub. The weather was so bad that he could not feed, and so he went away leaving the

sugar syrup in the tub. Now, this man was not a chemist, and failed to figure on any chemical action that might be taking place while he was away. About the first of March he went back to the yard and fed the syrup to twenty-six colonies, and, greatly to his surprise, he killed every one that he fed. He could not understand it; but he did notice that all the zinc on the tub was gone where the syrup touched it. Now, was not that a case of zinc poisoning, due to the fact that the syrup had enough acid of some kind in it to dissolve the zinc with which the tub was coated? He claims that he mixed 16 pounds of water to 25 pounds of sugar. The syrup was good and thick, and had not soured. Evidently the zinc did the work.

What about his combs? The combs have some honey or syrup in them; and to give these combs to other colonies would be a rather risky proposition.

Mt. Airy, N. C. J. E. Johnson.

[We nearly always mix our syrup in an extractor-can, and very often store it for weeks at a time; but never have we had any trouble from poison. It would be our opinion that Mr. Johnson killed his bees by feeding too early. He should have given candy or frames of sealed stores. Mid-winter or early feeding overstimulates a colony, with the result that it starts breeding when the weather conditions are unfavorable. While we do not deny that poison may have had its effects, such early feeding is always attended with great risk.—Ed.]

Pays to have a Money Order.

In February, 1914, I sent an order of twenty-eight dollars to a party in California for bee supplies. In about a month's time I expected my freight at the station, also reply from the man, but in vain. I sent him a letter, but got no answer. I sent a letter to the postmaster to find out if the money reached them. In about three weeks came the answer from that postoffice that the party had received the money order, and would give it proper attention. I waited another month without getting more reply or goods than I had, and the letter from the postmaster. I went to our nearest town, about nine miles, horseback, to see an attorney, and explained to him the case. In two weeks I received my order with the money order, so you see he never cashed it. There was not a single line of excuse.

It is always safe in sending money by money order to save the slip, even if it is for only a small amount.

Weiser, Ida. Mrs. Margarete Green.

How to Keep Bees away from Watering-troughs.

I tried the experiment of placing salt in the water where I wanted bees to drink, in order to entice them away from places where stock were watered. While I provided this salt in several different arrangements I could

not see that it was of any help whatever. However, I hit upon a scheme rather late in the season that seemed to work. The watering-place for my cow and horse, that the bees seemed to like so well, was an old cedar tub that had been part of a washing-machine. I found that, by sprinkling a little kerosene on the water and on the edges of the tub a day or two apart for two or three times, the bees deserted the tub entirely, and that it did not seem to bother the stock in the least. N. Fred Gardiner.

Geary, Okla.

Starved-out Swarm.

I wish to relate an experience I had with a five-frame nucleus having an Italian queen. Altho I have kept bees for over thirty years, I never saw the same before.

The colony worked very well, and filled the frames with brood. In July I put on a super of 21 boxes; the bees partly filled these, and continued quite active. On September 15 I happened to look at the hive, and, to my surprise, it was silent. Two days before they were just as busy as they could be. I immediately examined it, and found it was deserted. The bees had left two days before. The frames were full of brood just hatching. I immediately transferred the brood to another hive, so that it could be cared for. There was no honey in the hive when I examined it. Can you explain this "desertion"?

Newton, Mass.

Frank Edwards.

[It is very apparent that the bees left because they were starved out. Had you fed them a little sugar syrup a day or two previous they would have remained. There are certain stages of the year when a colony that is increasing very rapidly needs to be watched very closely, or it will starve out or swarm out. It is, therefore, what we call a starved-out swarm.—Ed.]

Two Field Meetings in Pennsylvania

The Philadelphia Beekeepers' Association has recently held two very interesting field meetings. The first was at the apiary of Captain Weston, at Essington, Pa., when over 100 beekeepers were present. Some very interesting demonstrations with the bees were given, and considerable bee-talk indulged in. Not the least interesting part was the "eats," so kindly furnished by the A. I. Root Co., and in such profusion that we were asked to eat several fellows' share.

This meeting took place at about the opening of the "yellow" honey-flow peculiar to the section adjacent to the Delaware River meadows. The plant, yielding the nectar, has a profusion of names; but no one, not even our learned botanists at Washington, seem able to give it the proper one. Locally it is known as the yellow flower, coreopsis, marsh sunflower, etc. The fields and meadows were a mass of golden yellow, such as the traveler has never seen elsewhere. The plant seems to be a relative of the Spanish

needle, but, unlike it, the flower has golden-yellow petals, and the seed does not cling to the beekeeper's trousers "closer than a brother," as does the Spanish-needle seed (beggardweed as some call it).

About two weeks later another meeting was held at the residence of Dr. Weaver, 7103 Woodland Ave., Philadelphia. Over fifty members were present. In the early part of the meeting the genial doctor turned his apiary over to the crowd. "They're yours. Do what you wish with them," and they did.

During the inside meeting much that was good concerning the wintering of bees "in this locality" was brought out; but the consensus of opinion was that the prime requisites for successful wintering are plenty of young bees and a goodly supply of honey. The "eats" were not forgotten either.

At the Essington meeting those who waited were rewarded by the appearance of Editor Root at the 11th hour (due to train delays), and his talk on advertising honey.

Oct. 10 the writer visited the Taylor apiary at the Rifle Range at Essington, and assisted in taking off and extracting between 1200 and 1800 lbs. of the rich, heavy, golden honey of the much-named yellow flower. On account of the cool atmosphere, fast work in extracting was impossible; and as no nectar was coming in the bees rather resented an intrusion. These bees were brought from Malvern, about 25 miles distant, about Aug. 18, purposely for this fall flow; and, despite the fact that hundreds of combs had to be built from foundation, the surplus will probably be between 4000 and 5000 lbs. for the 100 colonies. Had it been possible to supply drawn combs, the crop would have been very much larger.

Chas. F. Hoser.

Norristown, Pa.

Nectar and Juice from the Cowitch Berry.

I am mailing you under separate cover two bunches of cowitch berries. We got a nice lot of honey from the bloom in summer, but did not know we got two crops from it. A few days ago I was walking on the island near us, looking at the wild white asters just beginning to bloom, and found the bees on these berries very thick. You will see where they get the honey (?). I don't think they puncture the berry first. I think it is done by some other insect, and then the bees get the juice. I want you to taste the juice that is in one. From the taste it should be good honey. I want to know if they make honey every year from these berries. You can find four bees to each berry. J. W. Potts.

Gunnison, Miss., Oct. 16.

[This was referred to our botanist, John H. Lovell, who replies:]

The letter and box of berries from J. W. Potts, Gunnison, Miss., was duly received. The species is *Cissus incisa* Desmoul., listed by Scholl in "Texas Honey-plants" under the name of "cowitch." It belongs to the vine family, or Vitaceae, and is found in all

the Gulf states from Florida to Texas. The blooming time is from April to August, and where the vines are abundant a surplus is obtained.

The black berries have a scanty pulp, and, when dried, are much wrinkled. The taste is sweet and pleasant, and the juice would undoubtedly be attractive to bees, not one but every season. Careful examination with a lens showed small holes or perforations in a number of the dried berries, thru which bees could easily insert their tongue. But in many of the berries I could find no punctures. Very likely Mr. Potts is right, and the holes are made by some other insects. If made by bees it would seem probable that all the berries would be punctured, since as many as four bees were observed on one berry. Before drawing any definite conclusion as to whether bees add largely to their stores from this source, further and more extended observation would seem desirable; and I would suggest you bring the matter to the attention of the readers of *Gleanings*.

Brood Being Carried Out.

The bees keep carrying out brood even after the young bees are nearly ready to leave the cell. They were carrying out seven-day-old larvæ, and I thought that it was lack of feed, so commenced feeding cane syrup, using the Boardman feeder. It did not seem to make any difference. The goldenrod flow is now on, and the bees are bringing in both honey and pollen, but as yet there is no change. I am just starting with bees in Florida. I never had this trouble in my apiary in Michigan. Ira J. Monroe.

New Augustine, Fla.

[It is a little difficult to decide what is your trouble without more detail. It is possible that the brood at some time was chilled or overheated. If the entrance of a hive be closed temporarily on a hot day, some of the brood may be injured, and the result will be that it will be carried out later. This will be shown by the young bees hatching out without wings. On the other hand, if the moth-worm is working among the combs it may destroy some brood, with the result that young bees will be carried out. If you were located in the northern states we should naturally conclude that the brood had been chilled by cool weather coming on. It is not an uncommon thing to see dead larvae and some young bees out in front of the entrance of a hive as a result of the brood being chilled perhaps a week or two before. In your climate, however, there would be no such trouble. Possibly the bees have gathered something that has killed the brood. You would do well to look very carefully to see whether there are any moth-worms at work on the combs.—Ed.]

Losses in Parcel-Post Shipments.

I wonder if it will surprise Mr. Chadwick when I tell him that my wife and I have charge of the postoffice in this little town,

and that we know that certain packages must have been willfully broken or else handled in a very violent manner. I believe both are partly true. Mr. Chadwick weakens his own argument when he says, page 184, March 1, "These sacks are handled as carefully as is possible with the volume of other parcels that are daily going thru the mail." That is exactly the trouble—"as carefully as is possible." At the junction town just west of here I have seen fifty tons of mail transferred from the C. M. & St. P. to the C. N. W. in a very short time, and I know that more than one "fragile" tag was flattened out under a ton of other "fragile" stuff, as the clerks had neither time nor room to care for it properly.

I was writing about extracted honey, which was put into tin cans which had the covers soldered on and were packed in corrugated paper. Some of these arrived at their destination empty, but no complaint of mail-matter being injured with honey. I do not charge that the honey was stolen, but it beats any sleight-of-hand work I can do, and I am counted quite clever. When I went to insuring every package the trouble ceased.

Dr. A. F. Bonney.

Buck Grove, Ia.

Winter Protection for Southern States.

I live southeast of central Kansas. I should like to ask you if, for wintering in this locality, the regular eight-frame dove-tailed hive would be all right with felt roofing, 3 x 4-foot pieces, capping it down over the hive and folding the ends down well, and tying binder twine around the hive. Of course I would leave them on their summer stands on four bricks, the north wind fairly well broken off.

Very few people pay much attention to bees here. They put them in a box and don't pack at all in winter.

Geo. C. Ableson.

Fredonia, Kan., Oct. 16.

[Ordinarily the locality of southeast Kansas would not require any special winter case. That is to say, bees will winter in single-walled hives; but it would pay to wrap the bees as you describe; yes, to go even further, and put regular winter cases around them, supplying packing of two or three inches. The government experts who have been testing out this matter have come to the conclusion that winter-packing in the southern states will save a good many bees and the loss of considerable brood. We believe that it would be advisable to err on the safe side by giving too much packing rather than not enough. Of course, wrapping the hives in paper as you describe is an old method that is used somewhat in the southern states, and it is a great deal better than no packing. Better go a little better, and place newspapers on top of the hive and around it, and then fold the other paper around in the manner that you propose.—Ed.]

When Shaking to Cure Foul Brood, What About the Drones?

I bought the bees near me two and three years ago, and burned and burned and burned to free the country from disease. I also shook and shook and shook, and it took me three seasons to learn that bees with drones had better not be shaken. When shaken on to starters the old drones just starve out and go right into some other hive and take the disease on their feet or bodies right along all over the yard. What becomes of the drones when bees are shaken for American foul brood?

Where should a frame be placed after drone comb has been cut out to prevent the rebuilding of drone comb?

Bradshaw, Neb.

C. B. Palmer.

[When there are many drones in a hive it would be possible, after the shaking, for them to spread the disease right and left. During certain seasons of the year when the breeding season is on, drones will be accepted in almost any hive; and after a general shake-up the presumption is that many of them will go into other hives and be accepted, while the worker-bees themselves from the diseased hive would be barred entrance; but in modern apiculture an excess of drones is not very common. In any case, the hives adjacent to a colony after shaking should be examined carefully for two or three weeks afterward, to make sure stray drones or other bees have not carried the disease.—Ed.]

Do Bees Shift Stores During Winter?

There is a statement in the A B C and X Y Z which I believe to be an error; and if not too late I hope to see it corrected in the new edition. On page 627, second column, near the bottom, is this statement: "The long-continued cold has given them no opportunity to warm up and shift the cluster over in contact with the sealed honey." I think the bees usually shift the honey over to the cluster—always do, in fact, if they have the least particle of brood. Possibly you did not intend the statement to be construed in that way; but I believe most beginners in beekeeping would so understand it, and feel as I did, when we had a mild day, say in February, that the cluster had moved over to the stores and was safe. Really their safety was in proportion to the amount of honey they had been able to uncap and carry over to the cluster. E. M. Cole.

Audubon, Iowa, Oct. 20.

This was forwarded to Dr. E. F. Phillips, of the Bureau of Entomology, who replies:

Mr. Cole is probably incorrect in believing that bees regularly shift honey during winter as they do in the fall, the fact doubtless being that the cluster is slowly moved toward the stores. The cluster is normally formed below the stores over empty cells

(usually to the front); and as the honey is consumed the cluster moves upward. If brood were present, as it should not be in mid-winter, they might move stores if the temperature within the hive were high enough. Under such conditions brood would probably not be present except in badly packed or unpacked hives, since brood-rearing often begins in response to cold within the hive and outside the cluster. We would expect, of course, that honey is moved from the edge to the inside of the cluster as needed.

There is much evidence that bees starve if they are not adjacent to honey, in case the temperature within the hive remains for some time too low to shift the cluster. This also would happen only in hives that were insufficiently packed and unprotected from wind.

Mr. Cole does not say what evidence he has of the moving of stores, as he seems to claim. If he has such evidence it would be well worth while for him to present it. The fact that the bees stay rather close to one place during winter is not proof of this, however, for in good wintering the amount of honey consumed is reduced.

The movement of the cluster is probably upward so long as there are stores above. When they reach the tops of the frames they go to the second story, if one is on, but in a one-story hive they move backward or forward more easily than to one side.

E. F. Phillips, Apiculturist.

Foul-Brood Law in New South Wales.

The following is a copy of subsection, section 12, of the apiaries act, 1916.

"1. Every beekeeper shall each year, on or before a day in the month of September, to be fixed by the minister, apply to the Under Secretary and Director of Agriculture in the form prescribed, give in writing such particulars of and concerning his apiary as may be prescribed, including the number of colonies of bees in his apiary on the first day of the said month of September, and shall with such application forward a registration fee amounting to one penny for each colony of bees in his apiary on the said day. If any beekeeper fails to make such application, or fails to give such particulars as aforesaid, or gives any particulars which are to his knowledge untrue, he shall be liable to a penalty not exceeding twenty pounds."

We had a very poor honey harvest last year. We extracted 3720 lbs. from 74 colonies, three-fourths of which was gray-box honey (fall flow). Yellow box yielded little, and redgum turned out a failure. My bees have wintered well, coming out with no loss, in absolutely perfect condition. Bees are now (Sept. 25) just about to begin swarming.

I sold all my honey last season at 6 pence per lb. A. P. Haberecht.

Henty, N. S. W., Sept. 25.

GLEANINGS FROM QUESTIONINGS

B. F. S., Newburg, W. Va. Will bees start queen-cells when there is a caged queen on top of the frame?

A. No hard and fast rule can be laid down in answer to this question. Ordinarily the bees will, but sometimes they do not. If a queen-excluder confines the queen below in a double-story hive, and a comb of eggs and young unsealed brood is put in the upper story queen-cells are apt to be started on that comb.

F. A. C., Golconda, Nev.—I have some weak colonies. How would it do to winter them over stronger colonies with an excluder between?

A. The plan of wintering two colonies with only an excluder between is not likely to be successful, for the bees are almost sure to desert one hive or the other, and all cluster together, leaving one of the queens to die because of being unable to get thru the excluder.

H. W. A., Watertown, Tenn. We still have a few drones. If a very late queen should mate now, how long would it be before she would begin to lay?

A. The queen may be mated this fall and not lay till next spring. In your locality she ought to lay soon after being mated.

C. R., Bedford, N. H. Do shallow extracting-frames have to be wired to prevent breakage in the extractor? I have 20 colonies. What size of extractor should I get?

A. Usually the shallow extracting-frames do not need to be wired. Some wire them, it is true, but only two strands of wire are necessary.

If you do not expect to enlarge your apiary a two-frame non-reversible extractor would probably be large enough.

S. S. B., Loveland, O. One of my colonies has just killed a queen which I introduced. What had I better do?

A. Rather than risk another queen as late as this we think it would be far better for you to unite the colony with some other colony weak in bees but having a good queen. While queens may be introduced as late as this it is a little risky, for the cold weather is likely to come on at any time to prevent any further examination.

A. G., Ben Avon, Pa. How can I get the honey out of some wired combs and still save the combs? I have no extractor.

A. It is very slow and tedious work attempting to get honey out of combs without a honey-extractor. If you do not wish to save the combs you could crush them up and strain the honey thru cheese-cloth by

means of pressure; but about the only way you can do and save the combs is to slice the cappings off, place the honey in a warm place, and let it drain out into a dish beneath large enough to catch it. This is very slow, however, for the honey evaporates and becomes quite thick so that you can not get it all out, but it is the only way that we know of.

L. S. B., Toronto, O. I have a colony with a young queen, and there are many small drones not much larger than workers. They were hatched in worker cells. What had I better do?

A. The chances are this young queen was reared late—too late to be mated—and has, therefore, become a drone-layer. Of course, there may be some other reason why she has become a drone-layer. At any rate, the colony will not be likely to winter. If there is a pretty good force of worker bees that are not old it might pay to unite the colony with some other colony having a queen; but if the bees are all quite old, and the colony not very strong anyway, we do not think it would pay you to try to save it as late as this.

O. B. C., Utah. Referring to your editorial on "Best Temperature to Heat Honey to Keep Liquid" you do not state the length of time that the temperature may be maintained at 160 F. We should also like to know if the can should be open while being heated, to give the best permanent results. Will a lower temperature maintained for several hours after honey is liquefied give the same results, say at 130 or 140, as higher temperature for shorter period of time?

A. When honey is heated to a temperature of 160 degrees Fahr., it should not be kept at that point much over an hour. The shorter the time the better. Honey that is heated to, say, 130 degrees and kept at that point for four or five hours, will keep liquid for a longer period under a variety of conditions than honey heated quickly to 160 and cooled quickly. But the trouble with the honey that is heated to 130 and kept there for four or five hours is that it turns darker than honey heated quickly to 160 and cooled quickly. Honey should never be heated except thru the medium of hot water or with steam. With the latter agent there is danger of getting the temperature too high. Hot water is better, provided the thermometer is used to test it. No honey should be heated without having a thermometer in it all the time the temperature is being raised. When the high point is reached, the heat should be shut off. The screw cap should be left off while the honey is heating if the can is full. If it is clear full some should be taken out or it will run over.

A. I. Root

OUR HOMES

Editor

Blessed are the dead which die in the Lord from henceforth: Yea, saith the Spirit, that they may rest from their labors; and their works do follow them.—REV. 14:13.

SOME PERSONAL RECOLLECTIONS OF YEARS
AGO, OF MY OLD FRIEND PROF. A. J. COOK.

I cannot recall at present just when or how my acquaintance commenced with Prof. A. J. Cook of Michigan Agricultural College. Soon after GLEANINGS was started he began answering questions sent us by our correspondents, both in regard to honey-plants and insects. I have always been more or less interested in maple-sugar making. In fact, it was one of the hobbies of my childhood; and when some one remarked that there ought to be a *book* on the subject of making maple sugar, as Prof. Cook had a maple-sugar bush of his own, I suggested that he write such a book; and while this matter was under way I made a trip to Agricultural College, Michigan, and Prof. Cook very kindly invited me to go with him to his home, and there I became acquainted with his estimable wife and two very bright children. I think, as far as I can recall, I made two and perhaps three visits to his home. During one of those visits I was greatly pleased with their form of family worship. Each one of the family read a verse. Then they all knelt down while the good father led in prayer. At one time the children were studying German with the view of having the whole family make a visit to Germany later on. They had a German Bible, and read the lesson first in German and then in English. I recall that on one of my visits I stayed over Sunday, and of course was present at the opening of the Sunday-school exercises. Prof. W. J. Beal led the Bible class; and I was impressed by his able way of talking to students about the Bible. I hardly need tell our readers that Prof. Beal, since that time, has occupied many high and important positions, besides his years of service at Cornell University. Of course I went along with friend Cook when he talked to his class of college boys. I remember that at dinnertime Mrs. Cook asked him what he had for the boys on that particular morning. His reply was simply "Night-dresses." At that time it was a novel idea to myself, and I presume it was so to the lot of young farmer-boy students, that men or boys should wear *night dresses* as well as the women-folks. I shall never forget that talk on night-dresses. In his peculiar and emphatic way he urged every boy present

to commence at once, if he had not already done so, to remove every bit of apparel worn during the day and replace it with a night-dress. I think he recommended a daily sponge bath; but he emphasized very strongly the importance of a good air bath any way, before putting on the night-dress. Altho I listened most attentively, and was sure he was right about it, I am ashamed to say it was toward twenty or thirty years after that before I adopted a daily bath and night-dresses.

Our good friend Cook was not afraid to carry his religion along with him in all the daily walks of life; and even when he was a boy, perhaps a bashful boy, he had the courage to stand up before the world for righteousness, purity, and temperance; and his good wife was right with him every time. I will tell you a little story of something that happened so long ago that perhaps I shall not get it all exactly as it occurred; but I can tell it so it will carry the moral.

Lansing is the capital of the state, and when the legislature assembles there are not only prominent politicians but prominent lawyers, doctors, and noted men in all the walks of life there. It happened one day that young Cook was obliged to ride in a stage coach with a lot of these "big men" who were on the way to the state-house. One of these commenced telling a low vulgar story. Prof. Cook, young as he was, protested. The great lawyer or politician with a contemptuous look at the boy said something like this:

"If a boy cannot stand men's talk, perhaps he had better get out and go afoot."

Our young friend was not at all vanquished. He replied something as follows:

"All right, I will get out and go afoot if this story is to be continued."

Then he called to the driver to stop, and stepped out. Just as the driver began clucking at the horses to go on, some one in the crowd spoke up:

"Hold on, driver! Come to think it over, I believe I too will get out and go on foot with the boy."

Then another one put in, "Well, if my wife were here I think she would admonish me to get out also."

My good friends, what do you suppose happened? Before the matter was settled every one of the crowd got out or started to get out, leaving the narrator of the obscene story to ride in the coach alone. I cannot recall how it was settled; but if

my memory serves me right it was something like this:

The man who started to tell the smutty story did the only *manly* thing he could do. He said something as follows:

"Gentlemen, get back in the coach and ride. I hereby apologize to the young man, and own up that he was right and that I was wrong."

I hope the state of Michigan has more young men of that kind. There you have, friends, a word picture of Prof. Cook when I first knew him.

The back numbers of GLEANINGS are full of his kind helps and suggestions. He was always present at the conventions of the Michigan beekeepers, and he was usually chosen to preside. He had a peculiarly happy way of making every one present say something. At one state convention at Lansing he commenced, as usual, calling on one after another. Well, there was a certain boy present at this meeting, and Prof. Cook kindly asked *him* about his beekeeping. He remarked that he was keeping bees "in company with his father."

"Well, now, that is a splendid idea," said Prof. Cook. "What better partner could a boy have than his father? and what better partner could a father have than his own son?"

That boy, by the way, is now Mr. A. L. Boyden, the husband of "Blue Eyes." I have mentioned their two boys, one of whom is taller than his father or mother. This *boy* of years ago has, perhaps, more to do now with our large honey business, buying and selling, than any other one of the firm.

In 1879 there were so many beekeepers who would persist in sending queens by mail in rickety home-made cages that the Postoffice Department issued orders, "No more queen-bees by mail." Now, even tho the traffic was then comparatively small to what it is now, it was going to entail quite a hardship and a sudden check on this branch of rural industry. Somehow everybody seemed to agree that *Prof. Cook* was the man to go to Washington with proper queen-cages and present the matter to the Department in order that queen-bees might be once more permitted to go thru the mails. Now, as far back as 1880 Prof. Cook's well-earned reputation was such that President Hayes invited him to ride with him and Mrs. Hayes in the President's car. Mr. Hayes asked Prof. Cook many questions about the new industry of beekeeping, and promised to use his influence in permitting queens once more, if properly protected, to be sent by mail. It was a great disappointment to

me, and perhaps to a host of others, when we were told that friend Cook was to leave Michigan College and go to California. But what was our loss it seems was California's gain. Ernest gave you quite an extended sketch of Prof. Cook's work at Pomona, Cal., in GLEANINGS for March, 1912.

Prof. Cook was from boyhood a wonderful teacher. Teaching was his special forte. Some years ago it was my privilege to listen to Prof. Holden in one of his celebrated talks on Indian corn. He had various specimens of ears of corn, corn plants, corn silk, etc., that he held up before the audience, and his way of talking impressed me strangely. I kept saying to myself, "Why, who is it that Prof. Holden reminds me of?" I finally decided that he was wonderfully like Prof. Cook in his talks to his classes at Michigan College. After the lecture was over I said to Mr. Holden, "Are you acquainted with Prof. Cook? Have you ever met him?"

"Why, my good friend Root, he was my teacher away back years ago; and to him I owe more, perhaps, than to any one else, what I have been able to give the world in my corn talks."

There you see it, friends. In the language of our text, the lifework of any good man follows him ages after he is dead and gone, and so on thru all eternity. That little episode on the crowded stage coach started a wave of purity that may extend on thru the ages. Years afterward, when visiting Mammoth Cave, in Kentucky, on the way over to the cave in a crowded stage coach some one started an impure story. The memory of what Prof. Cook did prompted me to protest; and when the narrator snarlingly said, "Well, who are you, anyway?" I simply said that I was a professing Christian, and felt that such stories would do no good and might do much harm. He never finished the story.

"GOD'S KINGDOM COMING."

My frequent use of the above heading has already called forth considerable remark and comment. Just now a newspaper clipping has been sent me, but with no intimation as to its source. It is one of the utterances of that sainted woman, Frances E. Willard. As she died long before any intimation of the present war, her words come down to us as a precious prophecy or inspiration. As you read it will you not breathe a prayer that God may *hasten* the "Coming of his kingdom"?

We all believe that one of the choicest fruits of Christianity will be the growth of a bond of brother-

hood and sisterhood so close among all nations, races, and peoples, that we shall become truly kindred each to the other, and that great word "humanity," like a rolling wave of the ocean of God's love, shall wash out from the sands of time the words caste, creed, sex, and even that good word patriotism, because we shall feel that the whole world is our country and all

men are our kin. Every utterance of appreciation, affection, and friendship; every token of mutual co-operation; every stroke of honest hard work undertaken side by side; every sincere prayer, helps toward this beautiful day that we call "the coming of the kingdom of God."

POULTRY DEPARTMENT

WHOLE GRAIN INSTEAD OF GROUND GRAIN FOR POULTRY.

Some years ago, if I remember correctly, I saw a statement from some state or national authority to the effect that it does not pay to *cook* feed for chickens, swine, cows, or horses. I have been for many years under the impression that in a like manner it does not pay to grind grain for poultry—that is, the gizzard of the fowl will do the grinding in the natural way, and give as good results as if the corn, wheat, oats, etc., were ground for them. I do not recall just where I got the idea; but I have for several years supposed that if the chickens could help themselves to corn, wheat, and oats, and a plenty of green stuff, together with animal food of some sort, it was about all I could do for them. Of late years our experiment stations, I am well aware, have recommended different "mashes" kept in places where the fowls could help themselves. Down in my Florida poultry-ranch I have fed whole grain principally. At different times I have procured mashes particularly recommended; but whether the chickens were not used to mashes or for some other reason, they paid but little attention to them. I have always supplied them with ground raw bone, also with lettuce, cabbage, kale, etc., in abundance. Well, I have in my hand a statement from the University of Missouri from which I clip the following:

It should be remembered that one of the principles of poultry-feeding is that the hen cannot do well if fed on a whole-grain ration. Not only does a ration of grain fail to furnish the proper food nutrients, but such a ration is difficult for the bird to digest properly. The great fault with the farmer in his poultry-feeding is that he attempts to feed a whole-grain ration, and generally only one grain at that. Such a ration results in poor egg-production and also causes digestive disorders and liver and kidney troubles. Complaints of this kind frequently come to the department of poultry husbandry, and a suggested change in the ration has usually resulted in the elimination of the trouble. Efficient digestion demands a combination of whole and ground grains. A ration should consist of grains and ground feeds. Generally speaking, twice as much grain should be consumed as ground feed. This depends, of course, upon the nature of the foods fed.

After reading the above over for several times I decided to send it to the poultry

department of our Experiment Station at Wooster. Below is their reply:

Mr. Root:—It is a rather common practice among poultrymen who devote some special attention to poultry feeding to feed a dry mash made up of various ground feeds and milling by-products as a part of the ration. I do not know of any experiments along this particular line that have shown that such a course is justified by the results secured.

In an experiment which we began here last December, one lot receives a ration made up of 3 parts corn, shelled; 2 parts wheat, 1 part oats, with 10 per cent by weight of meat scrap fed in a trough each day at noon. On the basis of this one experiment, the use of a dry mash seems advisable, altho we shall want to continue this work for a number of years before announcing definite results. You will note in our Bulletin 291 that a dry mash was used in all of the experiments. In the light of present knowledge it would seem advisable to allow about one-third of the ration to be a dry mash, composed of milling by-products and meat scrap, and probably ground corn.

W. J. BUSS,

Assistant, Poultry Husbandry.

Wooster, O., Sept. 30.

Just now I am getting the best results in the way of eggs from a small number of pullets that I have ever had in my life so far as I can remember; and they have been having for a month past almost nothing but sweet corn in the way of grain.* Most of the sweet corn is dry, hard, whole grain. They have a little sour milk and a few scraps from the table. I might say right here, however, that the way Mrs. Root manages our household there is but very little left for the chickens unless it is bones which we grind up. And this reminds me that, altho I have in years past tried about every bone-mill on the market, the one that pleases me most is the Wilson "Crown" mill. I think the list price is only \$9.00. It is made by Wilson Brothers, Easton, Pa. It is all easily "get-at-able," and very simple, with no loose parts to be dropping or

* One reason for feeding the fowls almost entirely on sweet corn was to see if our good friend is right in what he says about sweet corn for chickens on page 689; and another thing, these pullets that I am writing about are the Eglington strain that claims to be remarkable layers; and it may be the strain has more or less to do with the fact that these young pullets, after laying their first egg, the biggest part of them have given us an egg every day for a month or six weeks past. My experience has been heretofore that pullets seldom lay every day at the start, especially if they commence at the age of five or six months. There are seven pullets that for quite a spell past (it is now October 16) from which we have been getting five eggs one day and six the next.

tumbling down, necessitating soiling your fingers, etc. For a flock of a dozen fowls it is all right; but if you have a hundred or more you will probably need a rather larger-sized machine. This machine will grind "corn in the ear," so as to be available for chicks, at a very fair speed.

THE EGLANTINE CHICKENS UP TO DATE.

The article above, as will be seen, did not get in at the time I expected. On page 879, Sept. 1, I mentioned one of the Eglantine pullets that began to lay when four months and eight days old. She laid an egg every day, or almost every day, until she was about five months old, and then she wanted to sit. The novelty of seeing a pullet wanting to sit when only five months old, and a Leghorn pullet, too, wanting to sit, was such that I concluded to let her have her own way. I gave her 13 eggs, 2 of which were not fertile, and out of the 11 she hatched 8 chicks. The weather was so cold, however, and probably, also, on account of their being only pullet's eggs, she hatched out only 8, 6 of which are now following their mother all over the premises.

Some years ago the *Rural New-Yorker* gave a picture of a pullet that they called "The Youthful Mother." One of the friends who reads GLEANINGS sent a copy of the picture, and we had it for several years hanging up on the wall in our home. I think their pullet began laying at about 4½ months of age, so you see mine is a little ahead. She is a splendid mother except that when the weather is cold she does not brood her chickens quite as much as an old hen would. She just scratches and scratches out in the garden from daylight till dark; and she is about the busiest hen or pullet I ever had anything to do with. I said on p. 954, Oct. 1, that the Eglantines of which I gave you a picture on page 878 were still laying eggs. Well, I shall have to except one that was run over by an automobile. I have been in the habit of letting them out of the yard at four or five o'clock in the afternoon, and before I knew it they got up into the street. I suppose they were attracted by the droppings of horses passing along the road. I drove them back repeatedly, and now I am mourning the loss of one of my Eglantines.

* Traveling over the country I frequently see dead chickens by the roadside—run over by automobile, doubtless. If this is true everywhere as it is around here, will it not pay farmers and others to have some sort of front fence to keep the chickens out of the main highway? Of course it is desirable to let them have the run of the farm in order that they may destroy insects, and thus save expensive feed, also. When one is in a hurry it often causes considerable delay to slack up to avoid running over any chicken that may take a sudden notion to cross the road in front of the machine.

I spoke about feeding sweet corn. Well, we grew enough sweet corn in our garden to supply the pullets until about the middle of October. Until the supply of sweet corn gave out I was getting five or six eggs a day; but just as soon as the corn was gone, and I gave them *field corn*, the laying dwindled until finally there were two days when I did not get an egg. I noticed that when I gave them field corn they looked at it rather suspiciously. They did not seem to feel sure that it was *good* to eat. It has now been a little over a week since I made the change, and now I am getting one or two eggs a day. Now, does the above indicate that sweet corn is a better feed for chickens, or was it simply a *change* of food? I think I have seen it stated that an abrupt change in rations will probably stop laying more or less; but I should hardly imagine that changing from one kind of corn to another kind would stop their laying entirely. We might think that the approach of cold weather (and we have had some very cold nights) just about the time they gradually stopped laying was the cause of it. The two older Leghorn hens I have mentioned are now moulting; but none of the pullets show any tendency to moult that were hatched in April in Florida.

THE "OUTDOOR SLEEPING-PORCH" FOR THE EGLANTINE CHICKENS.

On page 878, Sept. 15, I gave you a picture of said sleeping-porch. Well, when the weather came on cold, especially when we had cold rains, I was very curious to know whether the chickens had sense enough to go down inside of the coop and roost under shelter. I am glad to say they have gone down three times inside—twice when there was a big rain, and once when there was a very high wind. On one occasion there seemed to be a difference of opinion among them. The rooster and three hens went inside while the rest stuck to their outdoor roost. So far I regard the experiment as a success; and I do believe it would pay to make some arrangement to let poultry roost outdoors when the season or weather permits. I have now 15 chickens besides the 7 pullets and rooster which I expect to ship down to Florida by express the day before we start, Nov. 14.

A KIND WORD FROM THE HOME OF THE EGLANTINE CHICKENS.

Mr. Root:—I want to thank you for various mentions of Eglantine chickens in GLEANINGS, and I sincerely trust that your success with Eglantine stock continues. It will if you do not breed immatures or overdo inbreeding.

I enclose a clipping from yesterday's *North American* telling of the doings of some Eglantine birds. I

wish Queen Caroline would stop laying and go into moult, but she is slowing down gradually. She didn't stop with 510 eggs, but that was her accomplishment in two years.

We believe the generation of chickens now coming into laying will give some marvelous records, which doesn't mean that we hope to beat the individual record of Lady Eglantine.

If I knew chickens as you know bees I'd get along faster than I do. But we are putting deep study, hard work, and the utmost of conscientious care into the improvement of our strain.

October 30.

A. A. CHRISTIAN.

Together with the above came a clipping from the Philadelphia *North American* of Oct. 29. The clipping contained three pictures of the Eglantines. Below is what we find under the picture clipping.

TWO HENS LAY 1010 EGGS IN TWO YEARS.

These seventeen Eglantine hens in twenty-four consecutive months laid 7389 eggs—an average of 434½. In their pullet year they laid 3933—average 231 1-3, and in hen year, 3456—average 203¼. Queen Caroline, upper right circle, laid 510, and Queen Mary, upper left circle, 500. This picture, made Monday, found some of the birds in the roughness of moulting. Two more Eglantine hens are expected to complete 400-egg records—their period ending October 31. Eighty-seven Eglantine pullets this year qualified in the 200-egg class—the best record will considerably exceed 280. Eglantine Farms have entered two pens in the competition to open next Wednesday—one for scientific observation.

As some may be asking, we would state that the Eglantine Farms are located at Greensboro, Md.

HIGH-PRESSURE GARDENING

THE GARDENETTE; OR, CITY BACKYARD GARDENING BY THE SANDWICH SYSTEM.

Something over a year ago Robert Livingston, of the Livingston Seed Co., wrote me, saying that I must go and see Benjamin F. Albaugh at Covington, Ohio, who was making some wonderful improvements in the way of growing stuff on a small area of ground. Our friends will remember that our tomato book, part three, is devoted to "how to support a family on one-fourth of an acre." Well, I did not go to visit friend Albaugh; but I have just got hold of one of the books he has recently put out, and it has been a delight and a surprise to me to see how nearly he and I had been experimenting along the line of "high-pressure gardening" without either knowing about what the other was doing. This book has 138 pages, and it is not only full of beautiful and enticing pictures on the inside, but it is also covered with beautiful pictures of what he has done in his backyard garden on the outside.

The "Sandwich System" is much on the line of the hotbeds and cold-frames that I described on these pages twenty or thirty years ago. The reason why he calls it "sandwich" is, as I understand it, that he sandwiches rotting leaves, straw, coarse stable manure, etc., between layers of soil, river sand, etc. Let me make some extracts—first from page 24, where we read:

If only one square rod is available, it will pay to have a "gardenette."

Again, on page 7:

The author has repeatedly produced on a plot containing but four square rods about the following:

Then he makes an enumeration of about 40 different vegetables which he grew on the above four square rods, and adds:

At a low estimate these are worth \$40.00. Often they would cost much more to buy. But it is not only the market value of the vegetables, but freshness and fine quality that should be considered.

On page 10 we read the following:

Finest vegetables can be grown on hard, stony, or alkaline soils, where ordinary cultivation would be utterly fruitless. Even where "made" soils consist mainly of brickbats and old wall plaster, the sandwich beds flourish. A solid rock, a paved street, or the tops of flat-roofed buildings, could be made into a successful garden by this method.

Further on he describes what he calls his "plant-incubator." This consists of a bed for growing early plants for transplanting by the heat of a common coal-oil lamp. I think he uses sash with glass to some extent, but mostly frames of the size of ordinary sashes covered with cheap cotton sheeting; and in order to keep out frost the better, he stretches cloth on *both sides* of the frame so as to inclose a dead-air space. Let me digress a little right here:

During the past season here in Ohio we have had the finest tomatoes we ever grew, and we have also had more tomatoes to the plant than I ever saw before. When I got back from Florida, "Blue Eyes," who is now quite a gardener, gave me six tomato-plants. She said the seed came from one of the finest tomatoes that grew the year before; and the tomatoes from those six plants were large, smooth, and (if Mrs. Root had not forbidden it) I would say they were the most delicious tomatoes I ever tasted *in all my life*. Well, I thought I had made a big invention in the way of a tomato-trellis, and I was going to make a picture of it to put in GLEANINGS. It consisted of three straight stakes driven in triangular form, each one a foot or a little more from the tomato-plant; then for a support I got a

coil of pretty good-sized wire and stapled it spirally around the three stakes. The only mistake I made was that I did not have my stakes driven into the ground far enough, and my wire was not heavy enough. The consequence was, the great load of tomatoes bent the wire and pulled one stake out of the ground so that it could tip over. Well, now my good friend Albaugh has just "gone and done" the same thing, except that he uses *binder twine* instead of wire, which will be cheaper and easier to put on, and probably will last about as long. Well, you know that potatoes have been my hobby, not only up in Michigan and here in Ohio, but down in Florida. Page 43 of this book contains the following sentence:

Treated as above described, the author has grown, on a space 6 x 20 feet, seven measured pecks of choice potatoes.

You will see from the above he got over a peck of potatoes from a space of ground equal to a 3x6 frame. We do not understand that he used any cloth frame, but that the small amount of ground gave over a peck of potatoes. With potatoes \$2.00 a bushel, as they are now, just figure up how much could be done on a whole acre on the "sandwich plan."

I might go on and give accounts of what he has done with various garden stuff, but our space forbids. He has accomplished with flowers also the wonderful results mentioned in regard to vegetables, and the book is "chockful" of the finest pictures I ever saw in any book.

This book, in paper covers, when first put out, contained only 64 pages, and is offered at 60 cts. The large cloth-bound edition contains 138 pages, price \$1.25. We can furnish either one. Elsewhere will be found an offer of either book clubbed with GLEANINGS.

BEEKEEPING, DAIRYING, AND SOME OTHER FARM INDUSTRIES CONTRASTED.

We clip the following from the Iowa *Agricultural*:

The normal cost of beekeeping is exceedingly small in comparison with other farming pursuits. It costs cents for materials and appliances, where dollars are invested in expensive machinery for dairying, and the income from the first investment is the greater.

Not only is it the "materials and appliances," but for poultry, cows, etc., you have got to raise or buy feed. I often think of this down in Florida when purchasing grain at a big price for my chickens. A hive of bees, after it is once established, requires no expense for feed. They feed themselves as a rule, and the owner also. You may suggest that beekeepers sometimes

are obliged to buy sugar; to which I reply, very seldom unless you have taken away more of their honey than was wise or prudent.

GOATS, GOATS' MILK, AND GOAT PERIODICALS.

Mr. Root:—In your issue of Oct. 15, in regard to goats for milk, as we find it hard to buy milk of any kind here I shall be very much obliged for any word on the matter as to where one can buy a goat, and where the periodicals you speak of can be had. The name of such periodicals will be thankfully received.

CHAS. BLAKE.

Snow Road, Ont., Canada, Oct. 27.

We give the above because there have been a number of similar letters in regard to the goat industry. While down in Florida last winter we had several numbers of the periodical; but the only thing I can get track of just now is the *Angora Journal* (monthly, \$1.00), published in Portland, Oregon. I presume some of our readers can give the address of those having goats for sale; and I myself have been thinking of having a goat to milk on our three acres of wild land in Florida. Would the goat interfere with the chickens or the chickens with the goat? Who can tell?

"GOD'S KINGDOM COMING."

It is now too early, Nov. 9, to give a full report of what has been accomplished by the recent election; but we can well say, "May the Lord be praised" for what the following gives us, which we clip from the *Cleveland Plain Dealer* of Nov. 9:

25 STATES NOW IN DRY'S COLUMN.

CHICAGO, Nov. 8.—More than half of the forty-eight states of the Union have been put into the dry column. Those which were added to the election Tuesday, making the total of dry states twenty-five, are Michigan, Nebraska, South Dakota, Montana, Utah, and Florida. The territory of Alaska has also been added to the dry possessions of the states.

The states which voted on the liquor question in which the dry forces seem to have been defeated, altho the returns are not all in, are California and Missouri.

F. Scott McBride, superintendent of the Illinois Anti-saloon League, thus stated the situation:

"A number of victories were gained for dry legislation in the defeat of propositions put forward by the wets intended to act as checks on the dry movement. In Colorado an attempt was made to secure an amendment favoring the use of beer under certain restrictions, and in South Dakota and Arkansas the wets championed local option as against statewide prohibition.

"In each instance the plans of the wets were defeated.

"The victory in Utah and in Florida was in electing a legislature favorable to dry legislation. The legislature is expected to pass promptly statutory prohibition.

"In the four other states which voted dry, the people voted directly on the dry issue.

"The statewide victories against the saloon were secured thru the Anti-saloon League in the various states, and give great encouragement to the aim of the league—a saloonless nation by 1920."

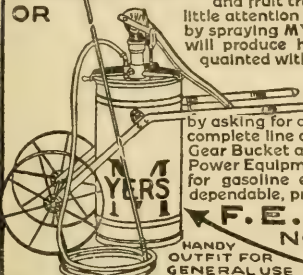
“SCALECIDE”

Fall Spraying Controls Leaf Curl. . . Does the Work; Cleans up the Trees.

Don't put off the dormant spray until the spring rush. The weather may be bad or the ground too soft. Spray this fall and make sure of controlling peach-leaf curl, San Jose scale, pear psylla, apple canker, collar rot, etc. You can save trees now that would die before spring. Use "Scalecide." Better and cheaper than lime sulphur—cuts

the labor cost. Never injures trees, hands, face or pump. Cost of spray materials will advance before spring. Order now and save money. Write today for free booklet, "The Whys and Wherefores of Fall Spraying." B. G. PRATT CO., Manufacturing Chemists. Department 6. 50 Church Street, New York City.

PROTECTION
BY
SPRAYING
MYERS WAY
OR



HANDY
OUTFIT FOR
GENERAL USE

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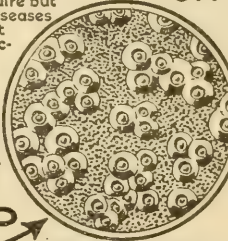
It will soon be time for Fall Spraying. Get your orchards and fruit trees in prime condition and they will require but little attention next spring. Destroy scale and similar diseases by spraying MYERS WAY, and have healthy trees that will produce high grade fruit next season. Get acquainted with

MYERS

SPRAY PUMPS & ACCESSORIES
by asking for a copy of our 64 page Catalog showing complete line of Myers Easy Operating Patented Cog Gear Bucket and Barrel Spray Pumps for Hand use and Power Equipments with Automatic Pressure Controller for gasoline engine--All styles, large or small, are dependable, proven and guaranteed. Write today.

F. E. MYERS & BRO
NO. 351 ORANGE ST.
ASHLAND, OHIO.

TREE DISEASE
AND
POOR FRUIT
OR



WINTER STAGE
SAN JOSE SCALE

3 Garden Tools in 1

The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.

Barker Mfg. Co.
Box 117 David City, Nebr.



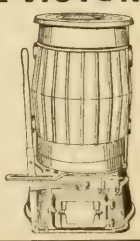
SEE
THE
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VICTOR and HOME VICTOR

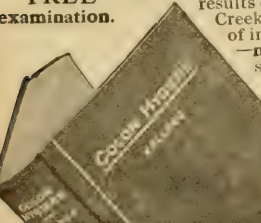
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Water Heaters for
House Heating

Heats bath and kitchen boiler too.
**ONE STOVE AND ONE FIRE
YEAR ROUND.** There is nothing like it. Send for booklet.

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Decide for yourself if this book can help you.
Sent for your **FREE** examination.



Dangerous Indigestion

Indigestion, Constipation, and the more serious ills to which they lead are so common and cause so much needless pain and suffering that Dr. John Harvey Kellogg has written a book telling how to prevent and remedy such disorders. The greatest living authority on diet and digestion here gives you the results of his forty years' experience as Superintendent of the Battle Creek Sanitarium where he has studied and treated thousands of cases of indigestion and resulting ills. "Colon Hygiene" is a book of facts—not theories. Do you want to renew your energy and stamina, stop suffering from headaches and backaches, have clear eyes, a smooth, ruddy skin, feel the exhilaration of real good health tingling through your body? If so, send this coupon now for a free examination of this splendid book. Learn how easy it is to live life anew—to acquire the dominant personality that comes from good health—to become suffused with the joy of living. All this, and more, you may get from Dr. Kellogg's book of 100 pages, which the coupon will bring to you. This free examination offer is limited, so send the coupon NOW before it is withdrawn.

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1011 Main St., Battle Creek, Mich.

Send me, all charges prepaid, "Colon Hygiene." After examination I will remit only \$2 or return the book within five days at your expense.

Name.....
Address.....

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

All honey sold. C. R. ALLEN, Vicksburg, Miss.

A1 clover-amber-blend honey in new 60-lb. cans, at 8 cts. VAN WYNGARDEN BROS., Hebron, Ind.

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—Clover honey of fine quality in new 60-lb. cans. THOS. PHILLIPS, Johnsonville, N. Y.

Light-amber honey, two 60-lb. tins to the case, at 7 cts. Sample, 10 cts. H. C. LEE, Brooksville, Ky.

Buckwheat honey, comb and extracted; also clover extracted, 60-lb. cans.

E. L. LANE, Trumansburg, N. Y.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7½ cts. per lb., f. o. b. cars. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Clover, heartease, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 8 cts. per lb.

W. A. LATSHAW Co., Carlisle, Ind.

FOR SALE.—A limited quantity of choice stock buckwheat and pure clover honey in 60-lb. cans and 5-lb. pails. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Fancy and No. 1 clover comb honey of finest quality, 4¼ x 1¾, 9 cases to crate, at \$3.00 a case, f. o. b. Ruthven.

MARTIN CARSMOE, Ruthven, Iowa.

No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case; extracted in 60-lb. cans; clover, 9 cts.; amber, 8 cts. Amber in pails, 6 ten-pound or 12 five-pound to case at \$6.00 per case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.

ELMER HUTCHINSON,
Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—Extracted honey in any lots. Send sample and prices. ED. SWENSON, Spring Valley, Minn.

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York.

WANTED.—Comb honey, fancy and No. 1 white clover; also buckwheat comb; glassed sections preferred. HOFFMAN & HAUCK, Richmond Hill, N. Y.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares.

SUPERIOR HONEY Co., Ogden, Utah.

WANTED.—Comb and extracted honey at jobbing price. NATIONAL HONEY-PRODUCERS' ASSOCIATION, Kansas City, Mo.

WANTED.—1000 lbs. No. 1 white-clover honey in 60-lb. cans. Send sample and prices.

S. S. LAWING, Ozark, Mo.

WANTED.—Several thousand pounds of clover honey, comb and extracted. Send price and sample. A. W. YATES, 3 Chapman St., Hartford, Conn.

FOR SALE

Get our new Rubber Stamp and Label Catalog. ACME PRINTING Co., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL Co., Clintonville, Ct.

SEND TODAY for sample of latest Honey Labels. LIBERTY PUB. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

Pretty green mistletoe for holidays, 15 cts. per lb., f. o. b., Brady. M. C. STEARNS, Brady, Texas.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. Co., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

Friction-top pails, 5-lb. size, \$4.75 per 100; 10-lb. size, \$6.50 per 100. Lower price on larger amounts. L. D. MARTINE, 206 E. Jefferson St., Louisville, Ky.

Good second-hand 60-lb. cans, 2 cans to the case, 30 cts. per case, in lots of 10 cases or less. In lots of 25 cases or more, 25 cts. per case. These prices are f. o. b. Cincinnati.

C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—22 new 8-frame comb-honey supers for sections 4¼ x ½ plain; 15 in flat just from Root factory; 7 nailed and painted, filled with sections and foundation; never been used; \$12 for the 22. CLARENCE G. LANGLEY, Rt. 2, Fennville, Mich.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

Protect your idea—don't give it away! Send data. Two wonderful Guide-books free. \$625,812.00 clients made. E. E. VROOMAN & Co., 834 F., Washington, D.C.

POULTRY

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry, for pleasure or profit; four months for 10 cts. POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB Co., Providence, R. I.

REAL ESTATE

FOR SALE.—Apiary and 160 acres of land, cheap. Old age compels. JOHN G. SOLDAN, Oberlin, Mich.

In the Imperial Valley, 10-acre alfalfa ranch, good soil; large new house; place well improved; 230 stands of bees; 10-frame hives; good bee location, 4 miles from El Centro; 3 miles from Imperial on good roads. WM. BARTH, Rt. 1, El Centro, Cal.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 Ry Exchange, Chicago.

FOR SALE.—Eighty acres 1½ miles from the Columbia River; 20 clear good bottom land; 20 in growing timber; rest, pasture; 114 colonies of bees, leather-colored; supplies on hand for 300; large shop, modern house, and other outbuildings; trout creek runs here; the place is a splendid location for bees. Write for particulars.

MRS. L. SCHMITT, Oak Point, Wash.

VIRGINIA AND NORTH CAROLINA FARMS, \$15 PER ACRE and up. Easy payments. Fruit, dairy, stock, climate, schools, churches, roads, markets, and neighbors of the best. Get our Farm Lists, Magazine, and other interesting literature, all free. Address F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

THE SOUTH FOR FARM PROFITS.—Southern lands are low in price—give large yields of corn and other grains, grasses, and forage crops; all kinds truck; grow fine fruit. You can get good lands in healthful location, where climate is pleasant and works for you, where two and three crops grow annually, for \$15 to \$50 an acre, according to improvements. Great opportunity for general farmers, stock-raisers, dairymen, poultry-raisers, fruit and truck growers. Information on request. M. V. RICHARDS, Ind. and Agr. Commissioner, Room 27, Southern Railway, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—For spring delivery, 600 colonies of pure Italian bees. Write LEWIS H. FERGASON, Box 108, Windham, N. Y.

WANTED.—To rent bees in the Salt River Valley. Have had six years of experience in the Buckeye Valley. A. J. ROSS, 2209 N. Monroe St., Phoenix, Ariz.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

My choice northern-bred Italian queens are hardy, and will please you. Orders booked now for spring delivery. Free circular. F. L. BARBER, Louisville, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

HELP WANTED

WANTED.—Position in an apiary in the South, Southwest, or West. FRED E. OSBORNE, Ahearn, Florida.

WANTED.—Apiarist. State wages wanted, and give references, age, and experience. Permanent position and good home for right man. W. J. STAHMANN, Clint, El Paso Co., Texas.

WANTED.—Young man or lady to take charge of apiary, 146 colonies; steady employment at fair wages; board and washing. Must be of clean character; a lover of music and good books preferred; if preferred, wife could give piano lessons in part payment for service. No user of liquor or tobacco need apply. L. W. MAXWELL, Turkey River, Iowa.

Convention Notices

The Indiana Beekeepers' Association will hold its annual meeting at the State House in Indianapolis, on Monday and Tuesday, November 27 and 28. We wish to arrange a good program for each day. Redkey, Ind., Nov. 1. GEO. W. WILLIAMS, Sec.

The Kansas State Beekeepers' Association will hold its annual meeting at Topeka, Nov. 20, 21. A good program is being prepared, and we hope all persons interested in bees will be present. There will be a honey banquet served at noon of the 21st. Topeka, Kan. O. A. KEENE, Sec.

The Wisconsin State Beekeepers' Association will meet in annual convention in the Assembly Room in the Capitol Building, Madison, Wis., December 7 and 8. An interesting program will be presented, and we are looking for the largest attendance at this time, altho we had an attendance of about 150 last year. We expect Dr. Phillips and other prominent beekeepers to be there. Headquarters will be at Simous Hotel.
Augusta, Wis.

GUS. DITTMER, Sec.

The Annual Stockholders' Meeting of the Idaho-Oregon Honey Producers' Association will be held in the City Hall assembly rooms, Ontario, Oregon, on Tuesday and Wednesday, December 5th and 6th. The first day's session will be given over to the election of directors for the coming year, while the second day's session will be more in the nature of a social one, discussions relative to honey production being in order.

All beekeepers in this territory are cordially invited to attend.
P. S. FARRELL, Sec'y.
New Plymouth, Idaho, Oct. 27.

The fifth annual convention of the Iowa Beekeepers' Association will be held at Des Moines, December 5 and 6. Judging from the list of men high up in the bee-world who have written Sec. Miller their acceptance, this meeting will be the best ever held. The Secretary, H. B. Miller, is filled with energy and enthusiasm clear to the brim, and the arrangements he is now making will make it worth the while of every beekeeper who can possibly do so to attend. Those desiring information as to hotels, train services, etc., should write H. B. Miller, Marshalltown, Iowa, or F. C. Scranton, care of the A. I. Root Co., Des Moines.
Des Moines, Ia., Oct. 27. F. C. SCRANTON.

The twentieth annual meeting of the Chicago Northwestern Beekeepers' Association will be held in the Great Northern Hotel, Room 138, on Monday and Tuesday, December 4 and 5, 1916. The program is not completed, but the following expect to be there and read a paper on the subject following their names: N. E. France, Platteville, Wis., "Marketing Honey;" Edward Hassinger, Jr., Greenville, Wis., "About Heating and Clarifying Honey;" Louis C. Dadant, Hamilton, Ill., subject not announced; Kenneth Hawkins, Plainfield, Ill., "Displaying Live Bees in Chicago Groceries;" Dr. E. F. Phillips, Washington, D. C., "Extension Work in Beekeeping;" Prof. Francis Jager, of Minneapolis, will be present and read a paper entitled "The National and its Problems." Dr. C. C. Miller writes that he hopes to be present. The question-box will be made a strong feature. Of course many others will have papers.
Valparaiso, Ind. JOHN C. BULL, Sec.-treas.

LAST CALL FOR MICHIGAN'S THANKSGIVING CONVENTION.

This is the last notice that will appear before Michigan is enjoying her fifty-first convention. Programs will be sent to all members of the association, and we shall be glad to mail programs to all interested beekeepers not members.

If you attended our last meeting at Grand Rapids you know what good times we had. This year we are looking for a larger attendance and a better time; so make your plans to attend. Your time and money can not be spent to better advantage.

The meetings will be held in the Capitol building, Lansing. Hotel accommodations can be had from 50 cents up, and cafes are reasonable in their charges. Headquarters will be the Wentworth Hotel, on Michigan Avenue East, and street-cars pass the door from all depots.

Come along, then, and eat your Thanksgiving dinner in Lansing. Following is the program:

THURSDAY—1:30 P. M.

President's Address, Mr. David Running.
Prevention of Swarming, Mr. C. P. Dadant, Hamilton, Ill.

Establishing a Trade Name for Honey, Mr. E. R. Root, Medina, Ohio.

The Sale of Honey, Mr. E. D. Townsend, Northstar, Mich.

Extension Work in Beekeeping, Dr. E. F. Phillips, Washington, D. C.
Some Beekeepers I have Met (illustrated lecture), Frank C. Pellett, Atlantic, Iowa.
Possibilities of the Combless Bee Package, Mr. A. G. Woodman, Grand Rapids, Mich.
Choosing a Location for Beekeeping, Mr. Ira D. Bartlett, East Jordan, Mich.
Successful Winter Feeding of Bees in Cellar, Mr. Leonard Griggs, Flint, Mich.
Which Should Beekeepers Produce—Extracted or Comb Honey? Mr. Floyd Markham, Ypsilanti, Mich.
Efficient Beekeeping, Mr. E. S. Miller, Valparaiso, Indiana.
Some Reasons for Failures in Beekeeping, Mr. F. Eric Millen, East Lansing, Mich.

Banquet Supper, Gift of The A. I. Root Co., Medina, Ohio, and Messrs. M. H. Hunt & Son, Lansing.

This year the association is giving away four medals, to be won outright, for exhibits of about 150 pounds of comb and extracted honey. The comb-honey medals will bear the portrait of Dr. C. C. Miller, and the extracted-honey medals will bear the portrait of L. L. Langstroth. There will be a silver and bronze medal for each class.

For the small class exhibits there will be nicely gotten-up diplomas, and these will take the place of cash or bee supplies which have been given formerly. These diplomas should prove good advertisements to the winners in their home localities, and we feel sure that the winners will feel proud of them. Following is a list of exhibits:

A—150 sections comb honey; first premium, Miller silver medal; second, bronze medal; third, diploma.

B—150 pounds extracted honey; first, Langstroth silver medal; second, bronze medal; third, diploma.

C—12 sections clover comb honey; first, second, and third, diplomas.

D—12 sections raspberry or other light comb honey; first, second, and third, diplomas.

E—12 sections amber or dark comb honey; first, second, and third, diplomas.

F—12 pounds clover extracted honey; first, second, and third, diplomas.

G—12 pounds raspberry or other light extracted honey; first, second, and third, diplomas.

H—12 pounds amber or dark extracted honey; first, second, and third, diplomas.

I—12 pounds extracted candied honey, most salable condition for market; first, second, and third, diplomas.

J—12 pounds beeswax; first, second, and third, diplomas.

K—one dozen honey cookies.

L—one dozen bran honey cookies.

M—Two pounds honey fruit cake.

N—Best apiarian appliance.

Diplomas will be given for Class J to N as in other classes. Exhibits must not bear the name or mark of exhibitor until after judged. All exhibits must be the product of the exhibitor or a member of his family.

Honey will be judged by the following scale of points:

Extracted—Style, 10; body, 20; color, 30; flavor, 40—total, 100.

Comb—Cappings, 30 (color, 15; finish, 10; no travel stain, 5). Honey, 50 (body, 10; color, 15; flavor, 25). Comb, 15 (well attached); section, 5 (clean).

Beeswax—Style, 10; color, 35; aroma, 25; cleanliness, 30.

Challenge medals will be competed for as follows: Classes C to I—Firsts, four points; seconds, two points; thirds, one point.

Classes J to N—Firsts, two points; seconds, one point; thirds, ½ point.

All exhibits must be in place on the evening of the 30th.

The silver medal is given by the Michigan jobbers in bee supplies, and is known as the Jobbers' medal. The bronze medal is given by the Association, and is known as the Association medal.

The challenge medal must be won three times before becoming the property of the exhibitor. This is the second year for competition for these medals.

Programs will be sent to all members of the association, and can be secured by any other interested beekeeper.

F. ERIC MILLEN, Sec.
East Lansing, Mich.

A Great Story Year

Everything from Every-
where for Everyone
in the Family

Just the best there
is and the most of
it for the money.

Think what a whole year of



The Youth's Companion

52 Issues—All for \$2.00

will mean to your family—every one of them. It is a paper for every age—the favorite family weekly of America. It is both older and younger than its name. 1917 will be a great STORY YEAR in The Companion. 12 Great Serials or Groups and 250 Short Stories, a thousand Articles and Suggestions, a thousand Funnyisms. Special Pages for the Family—Boys—Girls—Children. New Pictorial Sections—Sports, Games, Receipts, Doctor's Counsel, etc.—52 issues a year—loaded with the best. No other publication in the world like it.

The great "BEST TWO" Offer includes the famous Fashion Authority, McCall's Magazine—all for \$2.10.

The BEST TWO Offer to *new* subscribers

Every NEW subscriber for The Youth's Companion who FD71 wishes to include McCall's Magazine by sending FD72 FD73 FD74 \$2.10 will receive all the following: FD75 FD76

1. THE YOUTH'S COMPANION—52 issues of 1917.
2. All the issues of the remaining weeks of 1916 FREE.
3. The Companion Home Calendar for 1917. FD40
4. McCALL'S MAGAZINE—12 Fashion Numbers 1917.
5. One 15-cent McCall Dress Pattern—your choice for 2c. stamp.

ALL THE ABOVE FOR

\$2¹⁰

The YOUTH'S
COMPANION
Boston, Mass.



Bees, Poultry and Fruit

Most beekeepers everywhere realize the possibilities of profit in the combination of beekeeping with fruit-growing and poultry-raising. Both fruit and poultry may be economically cared for in connection with beekeeping; both are possible even on a small place; and both are becoming more and more profitable as city population increases everywhere. The beekeeper, too, has the best promoter of good fruit in his bees, and has time to care for poultry when his bees are not demanding his attention and when "hen fruit" is at the highest price. Bees, fruit, and poultry, properly cared for, make up a triple sure business.

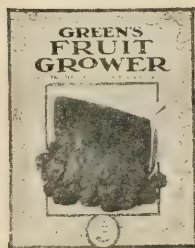
An Ideal Combination

Realizing that a large number of our readers would like practical information along these lines, we have arranged with the publishers of the leading fruit journals and poultry journals of the country to club their journals with Gleanings in Bee Culture, at a special low price.

The American Poultry Advocate



published monthly at Syracuse, N. Y., is devoted to the interests of all practical poultrymen. It is helpful in all branches of poultry work to the beginner as well as the expert. Tells how to get eggs at the least cost, how to feed to get best results. No detail left out. It stands SECOND TO NONE in its value to poultry raisers. This paper will help you to success in the management of your poultry. Regular price 50 cents per year.



Green's Fruit Grower

will be better than ever during the coming year. Whether your subscription is expiring right now or not, it will pay you to take advantage of this special club. All subscriptions will be extended 1 year from their present expiration dates.

All Three Magazines a Year for \$1.00

Send Your Order Today to

Gleanings in Bee Culture, Medina, Ohio

Gleanings in Bee Culture

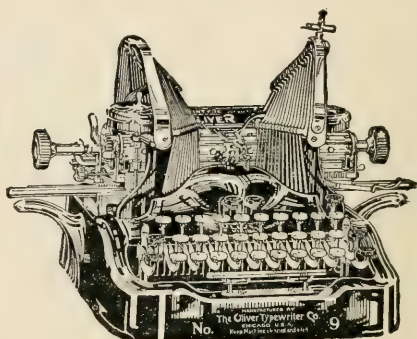
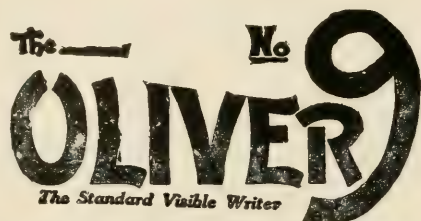


Vol. XLIV

DECEMBER 1, 1916

No. 23

A NEW MODEL TYPEWRITER!



BUY IT NOW

Yes, the crowning typewriter triumph IS HERE!

It is just out --- and comes years before typewriter experts expected it. For makers have striven a lifetime to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

CAUTION!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models — famous in their day — never had the Optional Duplex Shift

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

WARNING!

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes — now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly — we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows you want the finest model.

17 CENTS A DAY!

Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 61½-ounce touch—plus the *Optional Duplex Shift, Selective Color Attachment* and all these other new-day features.

Yet we have decided to sell it to everyone everywhere on our famous plan —17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included *FREE* if desired.

TODAY---Write for Full Details

and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

THE OLIVER TYPEWRITER CO., 212 Eric Bdg., Cleveland, O.

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1....holding 24 sections, $4\frac{1}{4} \times 1\frac{7}{8}$, showing 4.....	10, \$2.00; 100, \$18.00
No. 3....holding 12 sections, $4\frac{1}{4} \times 1\frac{7}{8}$, showing 3.....	10, \$2.00; 100, \$18.00
No. 1 $\frac{1}{2}$ holding 24 sections, $4\frac{1}{4} \times 1\frac{7}{8}$, showing 4.....	10, \$1.90; 100, \$17.00
No. 6....holding 24 sections, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$, showing 4.....	10, \$1.80; 100, \$16.00
No. 8....holding 24 sections, $4 \times 5 \times 1\frac{1}{8}$, showing 4.....	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

No. 11....Same as No. 1...Nailed, 35c; in flat, 1, 25c; 10, \$2.30; 100, \$21.00.....	with 3-inch glass	with 2-inch glass
	100, \$20.00	100, \$20.00
No. 13....Same as No. 3...Nailed, 22c; in flat, 1, 15c; 10, \$1.40; 100, \$12.50.....	with 3-inch glass	with 2-inch glass
	100, \$12.00	100, \$12.00
No. 11 $\frac{1}{2}$ Same as No. 1 $\frac{1}{2}$...Nailed, 35c; in flat, 1, 25c; 10, \$2.20; 100, \$20.00.....	with 3-inch glass	with 2-inch glass
	100, \$19.00	100, \$19.00
No. 16....Same as No. 6...Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....	with 3-inch glass	with 2-inch glass
	100, \$19.00	100, \$19.00
No. 18....Same as No. 8...Nailed, 30c; in flat, 1, 22c; 10, \$2.10; 100, \$19.00.....	with 3-inch glass	with 2-inch glass
	100, \$19.00	100, \$19.00

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Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the side not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

HONEY MARKETS

CLEVELAND.—The supply in market seems to be smaller than usual, but is equal to the demand, which is only fair. We quote fancy, per case, \$3.85 to \$4.00; No. 1, \$3.60 to \$3.75; No. 2, \$3.25 to \$3.40. Cleveland, O., Nov. 25. C. CHANDLER'S SONS.

PITTSBURG.—Receipts continue to be liberal, but no oversupply. Demand is good; extra-fancy honey, comb, is selling at \$3.75 to \$4.00; No. 1, \$3.50 to \$3.75; buckwheat, fancy, \$3.25 to \$3.50; No. 1, \$3.00. W. E. OSBORN CO. Pittsburgh, Pa., Nov. 23.

SYRACUSE.—The demand at present is not over-brisk for either comb or extracted honey. The general supply seems to be fully adequate to the demand. We quote fancy, per case, \$3.60; No. 1, \$3.36; No. 2, \$3.00. White extracted honey brings 8 to 9 cts. in small quantities; light amber, in cans, 8. Syracuse, N. Y., Nov. 23. E. B. ROSS.

BOSTON.—There is a fair movement in both comb and extracted. We quote extra fancy comb honey per case, \$3.50 to \$3.75; fancy, \$3.25 to \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.00 to \$2.50. White extracted honey brings $9\frac{1}{2}$ to $11\frac{1}{2}$. Clean average yellow beeswax brings 28 to 30. Boston, Mass., Nov. 23. BLAKE-LEE CO.

ALBANY.—Receipts are free, and prices favor the buyer for comb honey. Of extracted honey there is an increased demand. We quote extra fancy comb honey, per case, 15; fancy, 14; No. 1, 13; No. 2, 12. White extracted honey brings 8 to $8\frac{1}{2}$; amber, in cans, $7\frac{1}{2}$. Clean average yellow beeswax brings 30 to 32. H. R. WRIGHT. Albany, N. Y., Nov. 23.

PHILADELPHIA.—We can report no appreciable change in market since last quotations. Comb is moving somewhat slowly; better inquiry for extracted honey; also buying pure clean country beeswax. We quote white extracted honey at 8 to 9; light amber, in cans, 7 to $7\frac{1}{2}$; amber, in cans, 6 to 7. Clean average yellow beeswax brings 28 to 30. Philadelphia, Pa., Nov. 22. CHAS. MUNDER.

INDIANAPOLIS.—There is very little to report regarding the honey situation, except that inquiry and demand continue active, but the volume of business is, of necessity, limited, owing to inability to obtain the honey because the supply is so depleted. We quote No. 1 comb honey, \$3.75 to \$4.00; No. 2, \$3.50. White extracted honey brings 11. Clean average yellow beeswax brings 28 to 30. Indianapolis, Ind., Nov. 24. WALTER S. POWDER.

NEW YORK.—Fair demand exists for both comb and extracted, especially for fine white grades. We quote fancy, per case, 14 to 15; No. 1, 13 to 14; No. 2, 12 to 13. White extracted honey brings $7\frac{1}{2}$ to $8\frac{1}{2}$; light amber, in cans, 7 to $7\frac{1}{2}$; amber, in cans, $6\frac{1}{2}$ to 7; in barrels, $5\frac{1}{2}$ to 6. Clean average yellow beeswax brings per lb. 31 to 32. New York, Nov. 24. HILDRETH & SEGELKEN.

PHOENIX.—The last car of light-amber honey was shipped Nov. 11, and sold at \$7.20 per case, which was a slight advance over former shipments. Light wax is firm at 25; one cent better for choice lots. Light amber extracted, in cans, brings 6 cts. Clean average yellow beeswax brings 25 to 26. Phoenix, Ariz., Nov. 17. WM. LOSSING.

KANSAS CITY.—The demand for honey is a trifle better, but it takes cold weather to make the demand good. We quote fancy, per case, \$3.00; No. 1, per case, \$2.90; No. 2, \$2.65. White extracted brings $9\frac{1}{2}$; light amber, in cans, 8; amber, in cans, 7 to $7\frac{1}{2}$. Clean average yellow beeswax brings 25. C. C. CLEMONS PRODUCE CO. Kansas City, Mo., Nov. 22.

PORTLAND.—Nothing new since last report. Comb honey is moving a little freer. Extracted stocks are coming in slowly; in fact, many sections have had a poor crop. We quote extra fancy, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.75. White extracted honey, per lb., $8\frac{1}{2}$; light amber, in cans, 8; amber, in cans, $7\frac{1}{2}$. Clean average yellow beeswax brings 25 to 26. Portland, Ore., Nov. 22. PACIFIC HONEY CO.

LOS ANGELES.—No supply of extracted here except for local use. We have surplus of comb, with little demand. Local prices are unchanged with little honey being used. We quote extra fancy, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. White extracted honey brings $8\frac{1}{2}$; light amber, in cans, 8; amber, in cans, 7. Clean average yellow beeswax brings 35. GEO. L. EMERSON. Los Angeles, Cal., Nov. 21.

CHICAGO.—The best grades of white comb are bringing 13 to 15; off grades from 1 to 3 cts. per lb. excess. Extracted is selling well, and there is no excess of supplies. The best white grades are bringing 9 cts., and those off in color or flavor are bringing 8. The best grades of light amber bring $7\frac{1}{2}$ to 8, with darker grades ranging from 6 to 7. Beeswax, if free from sediment, and good color, brings 32; dark grades, 28 to 30. Chicago, Ill., Nov. 17. R. A. BURNETT & CO.

ST. LOUIS.—The demand for comb honey, the fair, has been very limited owing to mild weather; but extracted honey is in good demand, and the market not overstocked, especially with Southern amber. Extra fancy comb honey brings \$3.50; No. 1 comb honey, \$3.00 to \$3.25 (fancy white comb); amber comb honey, \$2.50 to \$2.75; white extracted honey, 9 to 10; light amber in cans $7\frac{1}{2}$ to 8; amber in cans, $6\frac{1}{2}$ to 7; amber in barrels, $5\frac{1}{2}$ to 6. Beeswax is firm at 31 for average clean yellow wax. R. HARTMAN PRODUCE CO. St. Louis, Mo., Nov. 23.

HAMILTON.—Demand is only fair. Stock is good. We are not looking for large sales till January. We quote extra fancy comb honey, per case, \$2.50 per dozen; No. 1, \$2.25; No. 2, \$1.50 to \$1.60. White extracted brings 12 cts. in 60-lb. tins; light amber, in cans, 10. F. W. FEARMAN CO., LTD. Hamilton, Ont., Nov. 21. MacNab Street Branch.

TORONTO.—Prices are unchanged since last issue. Comb honey which is now on the market sells as follows: No. 1, per case, \$2.40 per doz.; No. 2, \$2.25. Toronto, Ont., Nov. 20. EBY-BLAIN, LTD.

CUBA.—Light amber, in barrels, brings 47 cts. per gallon; amber, 47. A. MARZOL. Matanzas, Cuba, Nov. 20.

LIVERPOOL.—The honey market in England is inclined to be on the easy side, the supply being in advance of the demand at present prices. We quote Jamaica, pale, at \$10.56 per cwt.; Jamaica, amber, \$8.88; Jamaica, liquid, dark, \$8.40 to \$9.60; St. Lucia, liquid, dark, \$8.40; Haiti, pale, \$11.04 to \$11.52; Haiti, amber, \$8.88 to \$9.84; Cuban, pale, \$10.32 to \$11.04; Cuban, darkish, \$7.92 to \$8.64; Californian, \$11.52 to \$14.40; Chilean, pile X, \$10.56 to \$11.52; Chilean, pile 1, \$9.60 to \$10.08; Chilean, pile 2, \$8.88 to \$9.36; Chilean, pile 3, \$8.04 to \$8.16. Of Chilean, 1242 barrels have just arrived—sales 1055 barrels. Beeswax is scarce, and inquired for. Chilean brings \$35.22 to \$42.48 per cwt.; Jamaica, \$37.02 to \$40.08; West African, \$38.88; Abyssinian and East African, \$40.08. TAYLOR & COMPANY. Liverpool, Eng., Nov. 13.

MEDINA.—Offerings of comb honey have been larger the past fortnight than for any similar period this season, and prices are ruling low. We confidently expect an improvement after Jan. 1. Extracted of the better grades is in good demand, and offerings light. THE A. I. ROOT CO. Medina, O., Nov. 27.

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Trees, Rocks,
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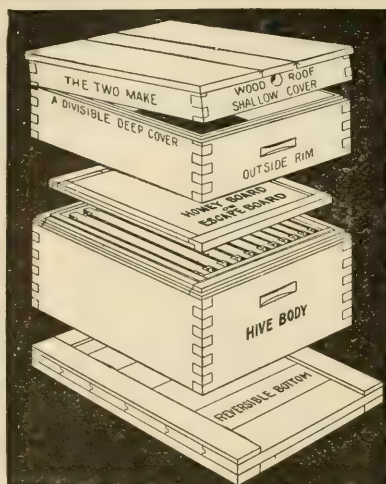
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PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

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Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

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Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
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The A. I. Root Co., Medina, O.

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No. 25 1-lb. screw-cap, \$5.00 a gross. ½-lb. screw-cap jars, \$4.25 a gross. Discount on quantity.

HONEY

We have a fair stock of both extracted and comb honey. Price on application. If you have honey to sell, write us. Cat. of apiarian supplies, and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
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Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter. It is a good life insurance. Send for circular also catalog of supplies.

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Decide for yourself if this book can help you.

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Indigestion, Constipation, and the more serious ills to which they lead are so common and cause so much needless pain and suffering that Dr. John Harvey Kellogg has written a book telling how to prevent and remedy such disorders. The greatest living authority on diet and digestion here gives you the results of his forty years' experience as Superintendent of the Battle Creek Sanitarium where he has studied and treated thousands of cases of indigestion and resulting ills. "Colon Hygiene" is a book of facts—not theories. Do you want to renew your energy and stamina, stop suffering from headaches and backaches, have clear eyes, a smooth, ruddy skin, feel the exhilaration of real good health tingling through your body? If so, send this coupon now for a **free examination** of this splendid book. Learn how easy it is to live life anew—to acquire the dominant personality that comes from good health—to become suffused with the joy of living. All this, and more, you may get from Dr. Kellogg's book of 400 pages, which the coupon will bring to you. This free examination offer is limited, so send the coupon **NOW** before it is withdrawn.

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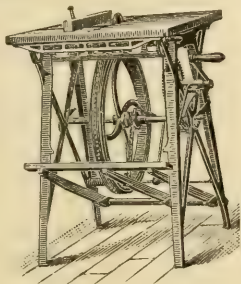
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Machines on Trial

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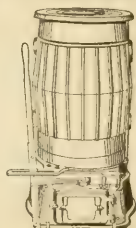


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We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here; we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.

"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. **PREPARE!** Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make it into

Dadant's Foundation

for you.

If you prefer, we will pay you our best trade price in exchange for **BEE SUPPLIES**.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED at all times.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. Root, Editor
A. I. Root, Editor Home Department

H. H. Root, Managing Editor
J. T. CALVERT, Business Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

DECEMBER 1, 1916

NO. 23

EDITORIAL

OUR California correspondent is developing into a racy paragrapher. See his department in this issue.

DON'T forget to take in Donahey's live-bee stunt in this issue, especially the expression on the face of the dog.

IF any one has extracted honey for sale he should get bids from the different markets. Delay may be dangerous. The supply of comb honey everywhere is large, and prices easy.

THE very novel arch-way shown on our cover is in the apiary of R. A. Morrison, Cataraqui, Ont., Can. The cover of the Dec. 15th number will show a beautiful winter scene in this same apiary.

THE secretary of the National Beekeepers' Association has announced that the next convention will be held at Madison, Wis., in February, exact date of meeting to be announced later. He says the officers have commenced on the program and will take up matters of great importance to beekeepers all over the country.

The Effect of Sudden Cold Snaps During Early Winter

FROM Nov. 23 on to the 25th we had wind, rain, and snow, with a sudden drop in temperature on the 24th and 25th. Indeed, this cold spell caught many beekeepers who had not yet put their bees into the cellar. It caught us; and an uncomfortable feeling it was, as we knew they ought to be in the cellar. After a cold spell like this it is advisable to let the bees have another flight, providing there is prospect of a warm day in the near future. To put the bees into the cellar too early is almost as bad as putting them in too late. Everything depends on the season.

Wintering at Medina

OUR Medina bees are put up for winter in four different ways. 1. In quadruple winter cases holding four hives; 2. Regular individual double-walled hives; 3. Single-walled hives packed in straw and cornstalks at one of the outyards recently acquired. 4. A few of the weaker colonies that have been used for window displays will be put into our big cellar.

We shall have an opportunity of comparing all methods of wintering; and, no matter what comes, our eggs are not all in one basket.

The Distance Bees Fly

IN this issue, page 1114, Mr. Doolittle takes issue with Arthur C. Miller and the editor as to the distance bees fly. Evidently Mr. Doolittle has not read all that the editor has said on this subject. If he will refer to pages 965 Dec. 1, 1915, and of this year, pages 150, 256, 866, 964, and 966 he probably will not differ very widely from us. Then if he will turn to an article by Mr. Louis Macey on page 1127 of this issue he will see that Mr. Macey is apparently with the editor. Times, seasons, and locality, as well as conditions, are so different that it is impossible to lay down any hard-and-fast rules. Sometimes bees will go five miles and even more; and just as surely they will not go more than half a mile at other times and under other conditions. Why this is, we do not know.

New Beekeepers' Paper in the Texas Field

MR. LOUIS H. SCHOLL, of New Braunfels, Tex., well known to GLEANINGS readers as the reporter of "Beekeeping in the Southwest," is to be the editor of a new beekeepers' journal, *The Beekeepers' Item*, soon to make its initial appearance. We understand that the new journal is to be published especially for the beekeepers of Texas and

adjoining states. Mr. Scholl says that the beekeepers of Texas feel that there ought to be some kind of medium thru which there may be an interchange of beekeepers' news matter and other information. Mr. Scholl further says that this need has become so vehement, and so urgent have been the persuasions on the part of many beekeepers, that he has finally decided to get out a beekeepers' "newspaper." It is Mr. Scholl's idea to emphasize the news feature of his journal, making it a "newspaper" in very fact. Along with the zealous reporting of beekeepers' "news" in his field, the editor will aim to make the educational influence of his journal as great as possible.

The new publication is to be a monthly, and we understand it will make its first appearance very shortly. Price, 50c a year.

Mr. Scholl will have the well-wishes of all forward-looking beekeepers in his efforts to advance the apicultural interests of Texas and the Southwest. GLEANINGS wishes him all the success possible in his new venture.

The Starch-glucose Trust Ordered Dissolved

ACCORDING to the news dispatches of Nov. 13 the starch trust, with a capital of eighty million dollars, has been adjudged guilty of "unfair methods of competition" in violation of the Sherman anti-trust law. The defendants, including The Corn Products Refining Co., according to the decree, "shall be divided in such manner and into such parts of separate and distinct ownership as shall be necessary for that purpose." The dissolution of the "trust" is to be effected within 120 days, and failing so to do the court shall take steps by receivership or otherwise to dissolve the unlawful combination.

The Corn Products Co., it will be remembered, are the manufacturers of the glucose product called "karo." This does not mean that karo and the other products of the allied companies will be taken off the market, but that each of the concerns, according to the decree, shall be operated in harmony with the law. Doubtless the case will be carried to the Supreme Court of the United States.

Our readers will remember that karo was originally advertised as "better than honey and for less money." We have never regarded it as a competitor of honey, because it is in an inferior class by itself. Possibly there are some who would buy honey if they could not get karo. More probably those who buy karo cannot afford to buy honey or the more expensive

syrops. To that extent karo may be supplying a demand all its own, and perhaps enable some poor people to have a sweet that they could not otherwise procure, but a dark honey of a higher price would go further.

Honey-market Conditions and Prices

While the extracted-honey market is becoming more and more firm, with prices above those of last year, the comb-honey market is going the other way, with quotations easier than those of last year. Possibly the firmness of the liquid-honey market will tend to stiffen the market on comb, but it is doubtful. Those who are holding extracted honey for better prices would do well to remember that the prices on comb honey and extracted ease up usually during and after the holiday period. See what Foster says in Rocky Mountain Department this issue, also Honey Column.

It is apparent that the heavy campaign of advertising honey by the publishers of this journal thru our popular magazines is creating an enormous demand for table extracted. It is impossible to advertise any one brand without advertising all brands of honey. We are reliably informed that the various bottlers, have sold in the aggregate over one hundred cars of honey in bottles and tumblers already this season. Such a call for liquid honey would have a tendency to stiffen the market. Before our campaign of advertising honey in the popular magazines such a demand would have been impossible. Honey in glass is cheaper than honey in comb; and if beekeepers had heeded our call last spring, see GLEANINGS May 1, and produced more extracted than comb, the market would now be good on both.

The Hearing on Comb Honey Freight Rates

On page 647 of issue for August 1 we called attention to the proposed discrimination against shipment of comb honey in less than car-load lots applying to territory west of Chicago. At the time we urged producers to write at once, protesting to R. C. Fyfe, Chairman of the Western Classification Committee, Transportation Building, Chicago. Apparently beekeepers got busy, with the result that comb honey in less than car lots may soon be sent at reasonable rates *provided it is sent* in carriers. Before this was allowed, a special committee of representative men appeared before the Committee on Railroads.

It will be remembered that the western classification effective Sept. 1 required the payment of two and a half times first-class rates on comb honey in cases not protected by carriers, and double first on comb honey packed in carriers.

On Oct. 26 there was held in Chicago before a sub-committee of the Western Classification Committee a hearing for a lower classification. Representing the beekeepers and others interested in the shipping of comb honey, there was Frank C. Pellett, of Iowa, assisted by Mr. Lewis, of the Iowa Commission; E. J. Baxter, of Illinois, president of the Illinois and Tri-state Beekeepers' Association and J. T. Calvert, of GLEANINGS IN BEE CULTURE. Mr. Francis Jager, President of the National Association, had spent several days in Chicago doing some good work but did not remain for the hearing.

It appeared from some remarks by Chairman Fyfe that the committee had been bombarded with letters as a result of notices appearing not only in GLEANINGS but in the *American Bee Journal* as well, and our case had been practically won before the hearing occurred. We were promised a concession in the first supplement to be issued soon, and to become effective January, 1917. The rates to be granted will probably be first class on honey in carriers, with no reduction on that shipped unprotected, if, indeed, such honey will be accepted at all in local lots.

It appeared in the evidence that the railroads had been called upon to pay damages in excessive amounts, not only on the honey broken in transit but often on other goods of greater value which were injured because of the leaking honey. Damage claims were more noticeable in the far West, where the use of carriers is not so common as thruout the East. The Southern Pacific Railroad alone had been called upon to pay over \$800 in claims.

There had also been numerous claims for losses in Texas and Oklahoma where friction-top cans and pails are largely used, showing that these containers are not entirely satisfactory for safe shipment.

The evidence presented at the hearing showed that where comb honey was put in carriers of not over 250 lbs. gross, having not less than four inches of cushion material in the bottom, and handles to move them with, it reached its destination without damage—especially if the honey was at all suitable for shipment. Out of nearly a million pounds of comb honey shipped in one year by The A. I. Root Co., there were less than five dollars in claims.

No one should offer for shipment, either

by freight or express, comb honey that is not well fastened to the wood section-box, top and bottom, or top and both sides. Honey not well fastened, if such is produced, should be disposed of locally.

It is unfair to the interests of careful beekeepers who use care, not only in the production but the packing for shipment of comb honey in safe carriers, to attempt to ship comb honey not well fastened, or to ship *any comb honey* in light cases without carriers.

The increased toll of many thousand dollars taken by the railroads in recent months is the direct result of excessive claims due to *careless, thoughtless, and slipshod shippers who have not been willing to take sufficient pains and expense in properly preparing their honey for safe carriage.*

While the lesson has been expensive we trust it has been well learned, and that shippers of comb honey will in future give the railroads a fair show by properly protecting comb honey for safe transport before offering it for shipment.

Beekeepers in western classification territory are to be congratulated that relief is in sight from the excessive rates now in effect.

There is need for a similar campaign in the territory covered by the southern classification where double first-class rates prevail on comb honey. We urge beekeepers and others affected to write to the Southern Classification Committee, W. R. Rowe, chairman, Atlanta, Ga., protesting against the present unreasonable rates.

We have already entered a petition to the committee for a reduction. If this is backed up by the right kind of appeals from those interested we may hope for action similar to that expected from the western committee.

This campaign should have been undertaken several months ago, but we overlooked calling attention to it then. Let a united effort be made now, and we may look for some relief.

The 1917 Edition of the A B C and X Y Z of Bee Culture

THE new 900-page double-column volume is nearing completion. It has been a tremendous undertaking, because every subject has been either revised or entirely rewritten, the most important having been entirely rewritten or nearly so. The minor subjects, while they have received changes and corrections and additions, are much the same as before. A large number of new subjects that never appeared before are now incor-

porated. The new volume will not only be considerably larger, but will be clear up to date from start to finish. Each subject found in its convenient alphabetical order is a complete monograph in itself. While there are numerous cross-references, each chapter is handled in such a way that it is a complete text-book in itself, taking in all the latest developments.

Among some of the new subjects will be found the Foreword at the very beginning, setting forth the nature and scope of the industry. The A B C of Beekeeping is the initial chapter. This gives a general birdseye view of the whole subject treated in the volume so that the reader will have a fairly concrete idea of what bees and beekeeping are at the very beginning and before he takes up his other course of reading. It is, in fact, a little text-book for beginners.

Among other new subjects are Backlot Beekeeping, Breeding Stock, Brood and Brood-rearing, Buildings, Bumblebees, Combs, Drifting, Dzierzon, Dzierzon Theory, Frames, Honey, Analysis of; Inventions Relating to Bee Culture, Langstroth, Patents, Queens, Quinby, Races of Bees, Sense Organs of Bees, Shipping Bees, Solitary Bees.

The following subjects have been very largely if not entirely rewritten, and therefore are clear up to date:

Adulteration, Alfalfa, Apiary, Bottling Honey, Comb Foundation, Diseases of Bees, Foul Brood, Fruit Bloom, Honey as a Food, Invert Sugar, Laws Relating to Bees, Manipulation of Colonies, Moth-miller, Nectar, Swarming, Sweet Clover, Transferring, Water, Wax, Wintering, Xylocopa.

There have been such great changes in the subject of Diseases of Bees, Swarming, and Wintering that they have been handled in an entirely different manner.

A. Hugh Bryan, formerly of the Bureau of Chemistry, Washington, D. C., has rewritten everything in relation to honey, the adulteration of honey, glucose, invert sugar, and the like. He has also prepared a special chapter on the analysis of honey. While it is technical it will meet the needs of the chemists who have been following antiquated methods for analyzing honey. The introduction of artificial invert sugar has made it necessary for the chemist to use new tests.

Honey-plants have had a complete overhauling by J. H. Lovell. A large number of new engravings will serve to identify the various species. The subject of pollination has received exhaustive treatment by the same author under the head of Fruit-bloom and Pollination. Alfalfa and sweet

clover have both been enlarged and entirely rewritten.

The Laws Relating to Bees have been handled by a lawyer also an experienced beekeeper. The new chapter is handled in such a way that not only the laws but the procedure will be of immense service to an attorney handling a case for a beekeeper.

The subjects of Swarming, Comb Honey, and Wintering have been submitted to the best experts in the country for criticism; for around these center some of the latest developments.

Wax-rendering, under the head of Wax, is given an entirely new treatment in the light of some recent experiments conducted at Medina. The general subjects of Migratory Beekeeping and Shipping Bees have been entirely rewritten.

One can hardly conceive that such important changes have been made in the industry within the last four years; but some investigations on the part of the Bureau of Entomology by Dr. Phillips and his assistants have made it necessary to revise our former opinions on a number of subjects, and the new A B C has it all in.

One will naturally see that a vast amount of work has been undertaken, and it was carried thru when the editor, author, and reviser was in the pink of condition.

The new volume will be the largest work that was ever published on bees. It covers nearly every important method or process used by the best beekeepers of the world. Under Artificial Swarming and Swarming every scheme for the prevention or control of swarming has been discussed. In short, we have endeavored to make the A B C and X Y Z of Bee Culture just what its name signifies—a complete treatment of the subject of bee culture from beginning to end in the convenient form of an encyclopedia. It has cross-references from one subject to another, and a complete index at the close of the volume.

The author and editor does not claim that his volume is *better* than any other bee-book, but he does claim that it is *larger* and more comprehensive.

The large increase in the amount of matter, together with the increased cost of paper, will make it necessary to charge \$2.50. If we were to charge on the basis of the old volume the price would be \$3.00. As it is, we club it with GLEANINGS one year for \$3.00. While the work is complete so far as the work of revision is concerned, there are yet about 400 pages to be run thru the press. We hope to have the new volume ready for delivery by Feb. 1 at the latest.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



I'm eagerly waiting to see the first number of the new GLEANINGS, Jan. 1.

A. I. ROOT, in accordance with your wish, p. 1013, I'm doing my level best to live as long as you, and also to have the best kind of time, with no anxiety for the future, because I am trusting that future to One "who is mighty to save." Yes, indeed, I can sing "The Rock that is higher than I" just as well as when you heard it last.

A WAY given, p. 1088, to get honey out of combs without an extractor, is to crush them up and strain the honey thru cheesecloth. An easier, tho not so good a way, is to melt them with gentle heat, allow the mass to cool, and then lift off the cake of wax.

SWEET CLOVER is getting bouquets from stock-raisers nowadays. In *Country Gentleman*, 1947, is given a report from Mitchell, S. Dak., where it is pastured on a large scale, and it was the belief "that three head of adult cattle to the acre was about the right quantity for a sweet-clover pasture. Needless to say, this is much more than ordinary native grasses or any other known pasture plant is capable of carrying."

J. E. CRANE, you ask, p. 968, "Are we to understand the moderate use of sugar will shorten a man's life, or that the use of honey will lengthen it?" I don't believe the moderate use of sugar will shorten a man's life; but more than 80 pounds, the annual average, is hardly moderate. I think that the substitution of honey for most of the sugar I would use will lengthen my life, or I'd eat less honey and more sugar. If I had used all honey from childhood, I suspect I would always prefer it as a matter of taste.

BEES stopped flying here not long after the first of November. The weather kept getting colder, and Nov. 14 it was 8 above zero. A perplexing question arose: "Shall I cellar the bees before their intestines become any more loaded, or shall I wait for another flight-day?" I decided to risk waiting; but it was not a pleasant frame of mind to be always thinking, "What if another flight-day never comes?" Finally my heart was rejoiced to see the bees in a glorious flight Nov. 19, with the thermometer at 52°." So in they go into the cellar the first day I can get Philo to take them in. [We had the same problem here. It turned steady cool or cold earlier than

usual. We are hoping for a warming-up spell, after which we will put the bees in the cellar. We are more likely to get it than you are.—ED.]

"ORDINARILY it is not practicable for beginners to unite bees of the same yard... Wait till cold weather..." p. 940. You forgot the newspaper plan of uniting—didn't you? Any beginner can use it in the same yard, and without waiting for cold weather. Lay a sheet of newspaper on the top-bars of one hive, and set the other hive upon it. The bees will do the rest. [The newspaper scheme is all right and endorsed in our A B C and X Y Z of Bee Culture. During cool weather we have not found it necessary to use it. In hot weather, such as we sometimes have in October, the bees above may suffer some for the want of air.—ED.]

SOME excellent talk about wintering, p. 1011. Along with it we can hardly emphasize too much the importance of pure air. That's where outdoor wintering has the cinch. You are right, Mr. Editor, in saying there is tendency toward outdoor wintering in very cold climates. But there is another tendency that must not be overlooked. That is the tendency toward having furnaces in cellars. In this region I think the number has quadrupled in the past ten years—perhaps in five. Wherever a furnace is put in a cellar the advisability of cellar wintering is greatly increased, simply because the higher temperature of the cellar allows the introduction of a larger supply of pure air without making it too cold for the bees. Another factor to be considered is the wind. You are dead right in saying, "If we had to choose between windbreaks and single-walled hives or double-walled hives out in the open, we would unhesitatingly choose the former." And before either of them you would probably choose a place so still that windbreaks would not be needed. The fact that a man in Canada finds outdoor wintering better for him does not convince me that it is better for me, altho 200 miles further south; for he may be where winds are neither severe nor long-continued, while my winds nearly blow me over, and make a business of blowing steadily day and night.

[Perhaps if you were where you could not inspect your cellar daily you would prefer the outdoor plan. Certain it is that a furnace with plenty of ventilation helps out a cellar for bees providing, of course, that the climate is cold enough. The new edition of the A B C and X Y Z makes quite a point of this.—ED.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



Count us among those who, with the editors, are "looking forward to a bigger and better GLEANINGS with enthusiasm."

All this part of Dixie has gone into winter quarters with the prettiest of prospects for clover in 1917.

We have used carbolic acid to advantage around hives that are being robbed, but did not know it was of benefit applied to the *robbing* colony, as outlined on page 987. Sometimes more than one colony is in the mischief, and anyway it isn't always easy to identify the robbing colony, whereas the veriest novice knows who's getting robbed.

Mr. Scholl, may I please take back my "Whew"? At any rate, I want to change the tone from one of amazement, tinged with protest, to one of downright respect. The explicit article on pages 1031, '32, Nov. 1, shows skill and efficiency developed to a high degree. If the quantity of smoke used doesn't hurt the honey a bit, and I assume it doesn't, or you wouldn't use it, you have a method of removing honey that is as excellent as it is rapid.

The editor's warning, page 965, Oct. 15, against extracting unripened honey, is one that can well be repeated many times. We have run upon several customers who have complained about honey purchased other seasons from different producers, who, we know, mean to be careful, but whose honey soured, being extracted too green. One man complained, not about that particular honey, but about honey in general. "What I don't like about honey," he grumbled, "is that you gotta eat it up so quick or it goes sour on you."

Today, Nov. 14, we of middle Tennessee are watching our thermometers in shivering amazement, for we have dropped to a freezing temperature and below. Last night Nashville fell to 28 degrees, which is very unusual for Nashville in November, with 15 to 20 promised for tonight. It is, of course, the same cold wave, somewhat penitent and reformed, that left Montana frozen stiff at 28 degrees *below* zero. Beekeepers naturally think temperature in terms of bees. I hope the blankets are tucked in tight around the Montana bees; and I half wish our own had an extra

quilt or two! I had planned to try out a few four-hive winter cases this fall, but somehow backed down when the time came, merely putting on a few shallow supers of leaves.

Mr. Foster says, page 1014, Nov. 1, that when the producer retails his own honey he ought to hold the prices up. And so he should—decidedly. He also says that when he sells to retailers he should let them make a sufficient profit. And so he should. But when the producer sells for 7 cts. in 60-lb. cans, and the retailer sells for 16 cts. in 10-lb. cans, doesn't the retailer get the best of that bargain? He makes more for putting the honey in 10-lb. containers, and selling it, than the beekeeper gets for producing it, and then putting it in 60-lb. containers and selling it, for he gets 9 cts. profit, while the producer gets only 7 cts. gross. Of course, if there is a middleman it is a different story; then the 9 cts. must be divided.

MOTHS IN EXTRACTING-COMBS.

We extracted in July, let the bees clean up the supers, then stacked up the extra ones in the supply room, treated them twice with carbon bisulphide, and thought no more about them. They were not touched again till October, when they were disarranged and rearranged, and yet not worried about, as it seemed too late in the season for moths, in spite of the warm weather. And then in the lean month of November we discovered them and their name was Legion. Sleek and prosperous-looking, the little white worms were scattered all thru our precious combs. But they had not done much damage yet, at that; and as we promptly dosed them again with the carbon bisulphide, we hope the trouble is over. It is true that the supers, piled one on the other, leave rather wide cracks, thru which I should think a moth might be able to enter, yet the combs must have been free from moths until rather late, probably when we disturbed them in October, or there would have been more galleries eaten thru the combs, and the larval development would have been greater. Mr. Sidney Olliff, in A B C and X Y Z, says the full-grown larva is about an inch long. I think none of these was more than a quarter of that length. The most interesting thing about it was that practically all the worms were in cells containing pollen. Where there was pollen, there was a worm, almost invariably. [Evidently the lesser wax-moth.—ED.]

NOTES FROM CANADA

J. L. Byer, Markham, Ont.



Regarding the matter of packing for out-door colonies, page 1010, Nov. 1, is it practical or possible to give enough packing to keep the bees warm enough to permit them to throw out all dead bees during long spells of weather away below zero? The most of us up here in our "Lady of the Snows" will not debate that question very much, but will almost unanimously say that it is not necessary any way, when one considers that good wintering can be accomplished without going to so much trouble to make such large cases as that procedure would entail.

GLEANINGS to be a monthly! It is up to the editor to change some subscribers' feelings on this question; for after speaking to a number of friends who take the paper they unanimously have said, "Sorry we shall get it only once a month from now on." But on reading the first editorial page, Nov. 1, it looks like a sure thing that all these subscribers will feel quite sure that the change has been made for the best. Quite a few thousand regular readers of GLEANINGS will await with no small amount of eagerness to see the initial number on Jan. 1. May their fondest desires as well as those of the publishers be realized.

In the north location, which is mainly a hay-growing country, the alsike in the old meadows seems to be all right. Here at home, alsike is strictly a biennial; but at the north location all agree that the plant will live on for three years. In other words, plants that came up in 1915 blossomed in 1916, and are alive this fall with good prospects of wintering, and again blossoming next year. While I am not prepared to be positive as to the correctness of this claim, yet circumstances seem to prove that it is right. Will some seedsman give us positive information on this point? Previous to the past three or four years I have always claimed that it is strictly a biennial. If I am wrong in changing that view I want to know it.

SOLID BROOD-COMBS OF HONEY.

Reading Allen Latham's article on page 973, Oct. 15, I am reminded of a practice followed by the late Mr. McEvoy in the spring of the year when he wished to give his colonies encouragement. He kept over

a number of full sealed combs of honey; and in the spring, after thoroly warming these combs he would place one flatwise right on top of the brood-combs of each colony, and then cover all up with packing again. Allen Latham recommends warming combs to give to the bees in the spring; and there is no doubt but that it would have a good effect. Whether enough help would be given to pay for all the work is another question. While temperature, as a matter of course, has much to do with regulating the amount of brood-rearing, yet there are cases that seem to disprove a few of the claims of friend Latham.

Referring to his flow from goldenrod, aster, etc., this fall, he says that the brood-nests are fast disappearing, and the brood-combs are becoming solid slabs of honey. This he ascribes altogether to temperature, the nights being cool, and also to the reduced number of bees in each colony at this season of the year. In the early fall of 1913 we had the only flow of aster honey that ever came our way—this was up north at the Lovering yard. Bees were abnormally strong for the time of the year, the whole fronts of the hives with supers on being covered each night. It is needless to say the weather was also abnormally hot for the time of the year as well. Comparatively little honey was stored in the supers, altho the supers were crowded all the time; but in the 13 days of the flow, about all brood was crowded out of the hives, and, as in friend Latham's case, the brood-combs became solid slabs of honey. We came to the conclusion that the time for the queens to lay was past for the season, for all queens, whether young or old, acted the same.

This year, as already stated, the clover flow was good, and lasted longer than usual. With hardly any swarming, colonies were very populous right thru the clover flow. But during the last ten days or so, practically all queens stopped laying, or at least allowed the bees to pack the brood-nests with honey, and this at a time when the thermometer was up around the 100 mark each day. This condition was relieved in many colonies later on in buckwheat flow, but the majority of colonies go into winter quarters with a lot of clover honey. In this case temperature had nothing to do with it, and I surmise that the queens were simply taking a rest after a long period of continuous brood-rearing.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Do you keep bees or do you make them keep you?

* * *

The proper size for an entrance seems to be about as nearly settled as the mooted question of "how old was Ann?"

* * *

There have been few seasons when my supply of bees has been greater at the beginning of the winter than at the present time.

* * *

We are glad you have an auto, Brother Crane; but we don't like to hear so much about it until we can blossom out with one of our own.

* * *

The average honey, even that weighing up to the standard, could be improved by a little more ripening. The riper the honey the less it will granulate.

* * *

Bees are going into winter quarters in fine shape in this locality. There are plenty of bees, also plenty of stores, *where the beekeeper has been wise.*

* * *

In response to the editorial headed "Are your bees packed for the winter?" I can say "yes," but they are not in chaff or leaves. I packed honey enough from the fat ones to supply the lean ones, and a little more for good measure.

* * *

The state convention is to be held in Los Angeles some time in December. Well, I had already packed my grip to go up into the central part of the state, as that was my understanding at last convention time of the place for the next meeting.

* * *

We vent our wrath on the wax-moth on several occasions, yet they are more of a benefactor in the long run than an enemy. Many are the old diseased trees and unearched-for hives where the bees have died out that they have cleaned up, thus preventing disease spreading.

* * *

The man in California who fails to leave his bees not only sufficient stores for the winter but a surplus to fall back on in the face of a dry season as well, will, eventually, be found either in the sugar market or sustaining a heavy loss of bees. In my opinion a man can not afford to feed bees even

at a difference in price of five cents per pound in favor of sugar.

* * *

So GLEANINGS is to have a new face and visit us only once a month. It will be a long time to wait to see who took the last dig at you. But then, if we get a larger and better magazine, one that will compare with the best, we will be up in the front row and thereby put the business of beekeeping on a higher plane. Good!

* * *

The early October rains ceased as abruptly as they began. Much of the weather of late has been very dry and "electric," drying out the ground and leaving much of the surface vegetation in a dying condition. Rain is needed badly to keep vegetation coming on nicely. But, will we get it in time? That is the point.

* * *

I have never seen the white sage stool out for blooming as extensively in this locality as it is this season. Each year when the plants are making their spring growth they also grow the base for the next year's bloom. This year the number of stalks on the stools for the next spring's bloom are very numerous; and should it be seasonable we may expect a wonderful bloom on this plant.

* * *

Mr. Scholl, I accept your explanation of how you take off forty pounds of honey per minute. I did not wish to infer that it could not be done, but it brought to my mind a story of a bull that chased a man across a large pasture. Just as he reached the fence the bull struck him and sent him sprawling on the other side. He gathered himself up, feeling more secure than for some minutes; then turned, shook his fist at the bull, and said, "You can do that once in a while, but you can't make a practice of it."

* * *

A very unnatural condition exists in a small area in the sage belt. Summer showers in September covered a small area just south of Redlands. This started the sage to take on its springtime hues. Then came the October rains which put an unseasonable growth on it in many places. In the canyons there are places where the growth has reached a length of from five to ten inches. The danger of freezing is great, for on the 14th of this month it got pretty cold, down to (there goes Chadwick knocking California again) so I'd better not tell.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



SWEET CLOVER.

The crop of sweet-clover seed will be very short here this year on account of the drouth in July. Some of the fields that were irrigated have a good stand, and will yield well; but the low price secured for seed last year will deter many from harvesting any. The demand for seed will apparently be pretty good this year.

* * *

Dr. Phillips says, page 418, of the November issue of *The Beekeepers' Review*, that cautious spreading of brood will increase brood-rearing. Under what conditions may this be done? I have been taken to task for advocating spreading brood, and think that defense of the plan by Dr. Phillips might help me out of a hard position.

* * *

Among the advances made in beedom during 1916 is the extension and establishing on a firm basis the shipping of bees in combless packages. The use of honey more generally has been helped by beekeepers thru circulars, demonstrations, advertising, etc. Consumption is very well apace with production. The advancing price of many things entering into beekeeping has seriously affected the profits of the business however. Financing the farmer has nationwide attention; financing the beekeeper is of as much importance to our business.

THAT MATTER OF SUPERING.

On page 1013, Nov. 1, Dr. Miller says that my statement that we seldom have a honey-flow heavy enough to justify lifting supers and placing empty ones beneath is another one on "locality." Well, I don't know about that. I have an idea that I could handle one hundred colonies of bees in such a manner that in average seasons it would be possible to put supers above and below with success. Bee management is never as intensive with 650 colonies as with one hundred or less. My queens are not so carefully selected, nor are colonies so well cared for, as would be possible with a smaller number. I would not want to compare my colonies in strength with Dr. Miller's. But average yearly production of honey per *man* is more the aim in the commercial-honey sections of the West; and these successful ones are the fellows who best apply intensive methods in an extensive way. It is a credit to the old guard—Mr.

Doolittle, Dr. Miller, etc., that the thousand-colony beemen read their writings very carefully. Often I hear the expression, "Stick to Doolittle," or, "You will not be wrong to follow Dr. Miller." Our best teachers are those who have time to go to the bottom of things.

THE HONEY MARKET.

Extracted honey is in good demand at a higher price by one cent a pound than last year. Comb honey is slow sale, and there is a tendency to shade prices to effect early sales. Beekeepers who have not sold their crop need money; and as interest rates are from 8 to 15 per cent it does not appeal to the beekeeper to borrow money on his honey to tide over until he can sell. The comb-honey producer is up against a hard proposition this year on account of the slow sale of honey and a much higher price for supplies. Help and all things entering into production are higher, while the comb-honey crop will net most producers less than the average of former years. Cars of comb honey are being offered at \$2.00 and \$2.25 in western Colorado, and at \$2.50 and \$2.75 in eastern Colorado. At these prices honey production is not profitable unless large crops are secured.

If some method could be worked out so that the comb honey could be shipped during warm weather, and then stored at destination, and money sufficient for the beekeepers' needs advanced upon it until sold it would help wonderfully. When beekeepers wait for buyers for a month or two they get desperate and have to sell for any thing they can get. This depresses the market so that those who have already bought at high prices lose money because they have to compete with the honey that has been unloaded on the market.

[Mr. Foster is quite right in many of his observations. The closing-out of the comb-honey crop late in the season at reduced prices to obscure channels of trade is very likely productive of great harm. Sales of an entire crop at a uniform price for the same quality will help the market in our opinion. For example, to sell one car at \$2.75, another at \$2.50, and the last at \$2.25, will net the producer no more than the sale of all three at \$2.50; but the market will be seriously affected by the reduction from \$2.75 at the opening of the season to \$2.25 at the close, leaving it in poor condition for the following season.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



THINGS MISLEADING.

"I have read what the two Millers have to say regarding the flight of bees—Arthur C. on page 866, Sept. 15, and Dr. C. C. on page 966, Oct. 15; also what the editor says on page 964. It seems to me that all but Dr. Miller put forth a misleading idea before the average reader. Editor Root says, 'That they will generally not go more than a mile in average localities and seasons we believe is not far from the truth.' This, I suppose, means a mile in a straight line in all directions from the apiary. Now, with 100 colonies could Editor Root, Dr. Miller, or Arthur C., in an average locality, secure the yields per colony reported, if the radius of flight were only a mile?"

In my memory of the days of the old muzzle-loading rifles I can see the champion shot of central New York putting the charge of powder in the barrel of his gun, then a cloth patch on the end of the barrel where the powder had gone in, and on this patch a ball of lead (100 of which it took to weigh one pound), molded in the bullet-mold, from a long-handled spoon of molten lead, heated on the coals in the open fireplace. Then with a wooden ramrod, made from a split hickory stick, this ball was pushed home, and a percussion cap put on the "tube." A chicken had been placed standing on a box 80 rods away (one-fourth mile), and whoever shot the chicken could have it. Many would shoot, but very few got a chicken. The old man would wait till all the amateurs had tried and failed, then he would raise the rifle to his shoulder, pull the trigger, and the chicken would drop. Now for Editor Root to tell us on page 964 that bees "very often do not go much over a quarter of a mile" for nectar does seem to me, as our questioner says, somewhat "misleading." And with 100 colonies set on the place where the old man fired from, I can hardly conceive of any beekeeper in this country securing an average of 85 lbs. of comb honey as I did for 15 years in succession.

Now for what I know to be positive facts, proven by actual observation when the first Italian bees were brought into this part of the country. The late Jerome Burtis, of Marietta, N. Y., a beekeeper of more than ordinary ability in the early seventies, procured the first Italian queen that came into central New York, receiving her in July. He raised some ten or twelve queens from

her the first season, so that he had nine colonies headed with Italian queens the next spring. As I had only blacks at that time I was very much interested in these Italians. When the apple-trees bloomed I watched the bees at work on the bloom, and, much to my surprise, saw several Italian bees at work with the blacks. A count was made, and the first gave three Italians out of a total twenty. Other counts gave from two to six Italians out of twenty, with apple-trees pink with bloom as far as the eye could see the orchards. Now, Marietta was $2\frac{3}{4}$ miles distant, as the crow flies, and apple-trees were white with bloom all around the $2\frac{3}{4}$ -mile radius from Marietta, yet Mr. Arthur C. Miller and Editor E. R. Root would have us believe that bees "will generally not go more than a mile in average localities and seasons."

That same year, with no Italian bees nearer, so far as I knew, I passed thru a field of red clover $3\frac{1}{2}$ miles from Marietta, and, seeing bees at work on the clover, the first count gave three Italian bees out of ten. The fields were red with clover everywhere.

Editor Root speaks of moving "the Waterworks yard scarcely a mile in an air-line." This was done in the aster bloom, and "Not a one" came back. Now, asters bloom in September here in central New York, and bees are comparatively "sluggish" to what they are during May, June, July, and August; and with a whole apiary moved I should hardly expect many to come back, especially if everything about their former home was cleaned up so that the old site had no homelike look.

About 1880, I sold during the latter part of May a colony of Italian bees to a man living about $1\frac{1}{2}$ miles away, and he carried them away after dark. The next morning at about eight o'clock I saw bees hovering about where the sold colony stood, and, being short of colonies, I put another hive on the stand having a frame of honey and one of brood in it. At night I had a good-sized nucleus in that hive, and built it up to a full colony which stored me several boxes of comb honey from the buckwheat bloom. A year or two later I sold a colony during the first days in June, having a \$10.00 golden Italian queen in it. This colony was taken two miles away, and enough bees returned the next day to make a small nucleus. (See Editorials.)

GENERAL CORRESPONDENCE

OUR GREATEST BEEKEEPING PROBLEM; HOW TO HELP SOLVE IT

BY GEORGE H. REA

Box-hive beekeeping as practiced by the average farmer is a serious menace to the whole industry, especially since foul brood has become so widely spread. The box hive will not admit of manipulation of any sort. The owner knows nothing of the inside conditions of his colonies, and in many cases cares less. When foul brood comes his way, his bees become polluted with it, and rapidly die out. The owner knows nothing of the real cause, but blames it on bad luck or "worms," or something else. This kind of beekeeping presents every inducement for the rapid spread of foul brood. Hives in which the bees have died are left standing for other bees to clean out and the combs later destroyed by moth. Our greatest present danger is the foul-brood phase of this question. In the fall many colonies are "taken up," or sulphured. The old hive daubed with honey, and the combs containing brood and a little honey, are scattered about for robbers to clean up. Often the ones killed are those that are too light to winter because diseased. Thus the disease may be scattered all over the surrounding country.

The box-hive beekeeper is constantly losing more than he makes out of his bees. No matter how willing he may be to make the most out of them, he is unable to produce results that will compare with the results obtained from good bees kept in good hives and operated by modern methods. From an economical standpoint alone, box-hive beekeeping is a losing game.

Ignorance regarding bees and beekeeping, and often regarding many other things, goes hand in hand with box-hive beekeeping. So far as the personal requirements of the box-hive beekeeper are concerned, real success consists in getting *swarms*. "That gum over there, he is a good one; he swarmed four times already, and I took ten pounds of honey from him," is a familiar expression. Some of the most ridiculous superstitious beliefs and practices are found among beekeepers of this class.

One lady, not far from Harrisburg, objected to having her bees inspected late in August because she said the honey would have to be disturbed, and to do so in the "cat days" would make it all sour, and she would lose her bees.

But that was mild in comparison to the

fellow who was afraid lest the inspector would charm his bees and they would all follow him home. He stated that the inspector could say a few words that would cause his neighbors' bees to leave their hives and go over into his hives—all excepting the queen. He was challenged to prove it, but he said he was afraid some one would find out his secret or make trouble for him.

One good old German lady solemnly told me that her bees had all died because no member of the family thought to rap on the hives when her husband died.

Not very long ago a man lay on his stomach before his hives for the greater part of three days, impaling certain large bees on a sharp stick which he wielded. A passing neighbor called to him asking what he was doing. "Killing these infernal robbers. I guess they come over here from Smith's." He was killing drones.

We are all familiar with the practice of "drumming" down swarms. I know one fellow who has a large circular saw suspended on wire, for this purpose alone. He uses a plowshare for a hammer; and when his bees swarm he makes a racket that may be heard a mile.

That is a harmless pastime, perhaps, and it serves to amuse and entertain the neighbors.

In the discussion of this subject I believe that we are safe in dividing box-hive beekeepers into four general classes:

1. Those who know something of the importance of better beekeeping, and who are ready and willing to transfer their bees and to co-operate in constructive work along this line. They are usually much interested in securing literature on the subject, and with a little encouragement become good beekeepers. I believe that fully 75 per cent of the farmers and backlotter who now keep bees in the old-fashioned way belong to this class.

2. This class consists of the people who enthusiastically inform us that their bees are all in modern hives and all pure Italian. They get two swarms and ten pounds of honey from each hive, and expect to have one thousand colonies some day, etc. Do they read a bee journal? Oh, yes! they had *GLEANINGS* at one time. But all their ideas of beekeeping are so magnified that they scorn the bee journals, and then they

have no time to read anyway. We usually find the hives among weeds so tall that the poor bees have to crawl three feet to the top of them in order to see daylight. And such bees! They meet us on the far side of a ten-acre lot with a welcome that reminds us somewhat of the disposition of the booze gang the next morning after a dry election. Pure Italians—whew! The hives were made in a factory all right, but the combs are so crisscross that not a single one can be removed without cutting it or splitting open the hive with an ax. These conditions are far worse than in any plain box hive. Hives with immovable combs, whether factory-made or home-made, must necessarily put its owner in the box-hive class.

3. There is also a class of beekeepers who are discouraged because their bees are not doing well, and who do not care to do anything about it because the bees don't mean anything to them. Fortunately such people do not stay in the business long. If their bees do not soon die they are sold cheaply, or given to some one who does care.

4. Fortunately, also this class is small. I refer to the beekeeper who is a sort of combination of the three other classes with some things added. He knows that he is behind the times, and a menace to good beekeeping, and yet he takes a grim satisfaction in the knowledge. He knows that he is getting practically nothing out of his bees, but he wants no instructions as to how he may do better. He is suspicious if not openly defiant toward the inspector, and suddenly wants to be let alone. He wants no one, not even the state, to presume upon what he calls his rights, and yet he seems to have no realization of the menace that he may be to the general good of apiculture nor his obligation thereto.

Some prosperous, up-to-date, and wide-awake beekeepers advise us to steer clear of the box-hive man with his slipshod methods. They admit that the worst enemy to the honeybee and to good beekeeping is the box-hive beekeeper; but they say that foul brood is a blessing to the one who knows how to handle it, because it soon cleans out the other fellow, once it gets into a community. But is that strictly true? Do the facts bear that statement out? And even if it were so, is that the proper attitude for us to bear toward our fellows? As a matter of fact we usually find that a scourge of foul brood hits the specialist so hard that he might well afford to get out among his neighbors and do considerable educational work in order to save himself much loss and expense.

It has been said that if we encourage the

small beekeeper we shall soon overstock our territory as well as cause an overproduction of honey. Last summer one fellow threw up his hands in dismay and said to me, "What are we going to do with all the honey when you fellows get all these farmer beekeepers educated to modern methods?" Well, if it were possible to accomplish such glorious results it would take so long that we would be listening to Gabriel's trumpet, and the honey market would collapse with a crash anyway.

With probably not over one per cent of the people of this country eating honey, the idea that there is a possibility of producing too much honey has no good ground for fact. If all the honey now produced were properly distributed there would hardly be a taste for each one.

The man who can deliberately say, "Let my neighbors' bees die with foul brood and by adverse conditions, I shall be the gainer thereby," must be a selfish man indeed. Such selfishness, if put into action in beekeeping or any other phase of life, is sure to act as a deadly boomerang against the individual who is dominated by such motives. What if all the farmers, fruit-growers, dairymen, manufacturers—all the business men in all walks of life—manifested such a spirit. We may imagine the result, but we cannot take space to discuss it now. That is the spirit that destroys men as well as business.

Let us now look on the bright side of this problem. My neighbor—a farmer—keeps a few bees. I show him how to transfer them, how to fight foul brood, and get him interested in some good bee literature. I do not refuse, either, to answer his questions nor to give him help when he asks for it, even tho it may take my time and sometimes tax my patience. The next thing I know he is interested in planting honey-producing forage plants—a boomerang of the right kind this time. Perhaps that is selfishness too; but if it is, it works good to my neighbor as well as to myself, and it is worth more than gold to me to have my neighbor meet me with a smile. Men who used to be prejudiced against alsike clover because they said it did not produce enough hay to pay now sow lots of it because they get some help and encouragement with their bees. That makes those locations much better for beekeeping, and really in a most direct manner it has made those men better farmers than they were. I get more honey from my neighbors' alsike fields than they do, and a good many barrels of satisfaction and fun out of it besides.

Only a few days ago one of my adjoining

neighbors told me that he had purchased a few hives of bees and wanted to know about moving them. He had a very humble expression when he broached the subject. I suppose that he thought I would object to his moving them so close to me. He seemed somewhat surprised when I swept away his fears with a hearty "Glad to hear it, John, call upon me for any assistance that I can give you." He now has about eighty acres that I expect to see put in alsike if I help to make a success of his beekeeping.

There is a place for the expert specialist in beekeeping just as there is a place for him in the growing of fruit, potatoes, hogs, cattle, or poultry. However, we must remember that the smaller producers in all lines contribute as much as or even more to the prosperity of the commonwealth than do the specialists. My observation is that practically every county in my native state of Pennsylvania should have at least one specialist owning several hundred colonies and making good profits. Such specialist need not and should not interfere with the smaller beekeeper; but in order to be most successful he should co-operate with and help them. We need education, organization, and co-operation along with our legislation for the betterment of beekeeping.

As mentioned earlier in this article, the farmer who is really encouraged to become

interested in his bees, and who begins to see something of real value in them, may become a better farmer than he formerly was because of a new interest in the planting of the legumes, which are at once our best forage crops, soil-builders, and nectar-bearers. Along this line we must not overlook the importance of the bee as a fertilizing agent among fruit-bloom. Since fruit is grown on practically every farm we surely have no right to deny the farmer his right to keep a few bees for that purpose as well as for the many other profits of beekeeping.

Bees are of such importance that, beyond a doubt, the industry should be fostered among the farmers. Since this is true it is of the highest importance that the state and national governments provide the means necessary for the preservation of beekeeping as an industry and necessary equipment in our various schools for the proper study of the subject. Slowly we are coming to this. Let us do all that we can thus to bring about the elimination of the box hive and its attendant evils.

Reynoldsville, Pa.

[This article was written before Mr. Rea knew that he himself would be a government expert whose business it is to educate the farmer beekeepers. See the article by Mr. Webb, page 1120.—ED.]

WAR ON HOME-MADE HIVES

BY LEWIS L. WINSHIP

E. E. Colien, p. 279, April 1, gave me and my article on home-made hives some hard knocks. As I said in my former article, this subject can be sifted and sifted, but will always be a live topic for a scrap.

Mr. Colien says I made some rather exaggerated statements, which in all probability is true; but if he were compelled to work with such make-shifts for hives as the one referred to in the photograph accompanying my article I think it quite probable that he would vent his wrath on would-be carpenters.

As Mr. Colien is over seventy he can be forgiven for making his own hives. A man of his age can spend his time doing so when he could not otherwise do heavy work. We are living in the twentieth century, a century of specialization. We do not, as formerly, raise our own sheep, shear them, card the wool, and spin it into yarn. We still raise sheep; but the wool is sold and bought back in the shape of yarn or in the finished garments. It is the same with

lumber for hives. Progressive beekeepers sell their lumber and buy it back in finished hives from some reliable manufacturer. By doing this they save themselves worry, annoyance, a lot of wasted lumber, time, and the necessity of buying expensive tools. The majority of large and successful beekeepers buy factory-made hives. If you still do not believe me, take a look around. I'll bet that you'll find the really successful beekeepers buy factory-made hives.

I know of only one man, an excellent carpenter, who makes his own hives, and he buys his frames. His hives are as well built and as perfect in shape as any factory-made hive. But he told me himself, and I quite agree with him, that he lost money on every hive he made if he counted his time worth anything. His lumber, the finest 7/8-inch white pine, cost him nothing, so really all he had to figure was his time. But if a man conscientiously goes at it to make a thoroly good up-to-date hive he must focus all his attention on that one thing. This

man to whom I refer has nothing to do most of the time, and can profitably spend his leisure time making hives; but the average man who keeps a few bees, and whose business is not extensive enough to take all his time, and who is working by the day for a very meager wage, had better work for that wage rather than to knock off to make a few hives. He can buy what hives he wants cheaper than he can get ready to make them. And a beeyard of factory-made hives well-painted is an advertisement not to be slighted.

There are some beekeepers who could not make a success of their chosen vocation with all kinds of up-to-date equipment; but if I wanted to make a success, I would certainly start in by using factory-made hives. They are a pleasure to work with, as each part fits so perfectly; they are interchangeable (something few home-made hives can brag of) and they look much better than a grand *ensemble* of home-made freakish-looking, ill-fitting hives which are a drag on the beekeeping industry and invite foul brood.

Springville, N. Y.

THE VALUE OF EDUCATING THE CARELESS BEEKEEPER

BY ROSS SCOTT

There is nothing more exasperating to the progressive beekeeper than to have some box-hive apiarist as a close neighbor, especially when disease is known to exist in the vicinity. It is a peculiar fact that the majority of these farmer beekeepers think themselves well versed in bee culture, and know positively that there could be no disease among their bees, altho every colony may be in a box as impregnable as the rock of Gibraltar. Of course there are laws which permit the inspector to go thru an apiary whether or no; but as a rule the man with a few colonies resents inspection and regards the procedure as an intrusion on his rights. This causes more or less unpleasantness and hard feeling toward the person who called for the inspection; so, if possible, it is better to approach these stubborn beemen in some other manner.

An interesting case of this kind occurred with me last summer. Near by is a farmer who kept about twenty colonies in as many styles of hives. Disease was known to be present—in fact, the inspector found two or three cases of American foul brood in the summer of 1914; and, altho two colonies

were burned, the owner did nothing with the rest. So I decided this spring that, in self-defense, I would either buy the bees outright or get control of them somehow. To make the matter more difficult, the beekeeper in question had put together the two facts that his bees had been inspected, and that he secured no surplus in 1914, and therefore concluded that the inspector and myself had tampered with his bees to spoil his honey crop. However, after considerable bargaining it was agreed that I should trade some modern hives for a part of the bees, and shake all just at swarming time, thus controlling the swarms and treating the disease at one operation.

Well, the plan worked; and in addition to getting the bees all in modern hives and cleaning up the disease we each secured a fair surplus in spite of the poor season.

Now, instead of being suspicious of inspectors and modern methods, my neighbor is anxious for the time to come when he may have the inspector back to go thru his colonies, and also those of some other beekeepers who live within range of his yard. No more box hives for him.

La Grange, Ind.

APIARY INSPECTION VS. EDUCATION

BY WESLEY FOSTER

The remarks of the editor, and the ideas of Mr. Ames, expressed on page 468, June 15, concerning "Education vs. Inspection," bring up some matters of vital interest to beekeeping. It appears to the writer that Mr. Ames enlarges upon the efficiency of education and minimizes the educational value of the inspection work.

The capable inspector in his work has the support and co-operation of the great

majority of the beekeepers in his district. Probably there is not over one beekeeper in ten but that considers the inspector a helper, friend, and adviser. In most counties in Colorado it is not necessary to show any authority whatever in the matter of cleaning up, but the power is there and is recognized.

It has been my experience, time and again, that the owners of diseased bees

express regret that their bees were a source of infection for their neighbors' apiaries, and they help the inspector to clean up the infection. In nine cases out of ten the cleaning up is done without any compulsion on the part of the inspector. After inspection has been in progress for several years the beekeepers learn the value of it and look for the coming of the inspector with pleasure, as he is usually better informed and can impart valuable beekeeping information. There is a small class in every community who object to what they consider interference with their private affairs, and this class *might* not be particular about spreading disease among their neighbors' bees. The fear of this is greater among some beekeepers than there is any foundation for. In a very few cases it doubtless has been done, but in no case should it deter the inspector in effecting a clean-up. If an inspector finds an apiary in a rotten condition at a time of year when robbing is being done, the procedure generally followed is to stay in the yard until no infection is left that the owner might use in spreading infection maliciously among his neighbors. The average man who neglects his apiary to such an extent does not value highly the diseased material that is destroyed. The aim of the inspectors is to help the owner rid his apiary of disease for his own protection as well as that of his neighbors.

Stock inspection, dairy inspection, and fruit inspection have been carried on so thoroly that the farmers are not opposed to inspection work. If they are persuaded that the inspector is competent and conscientious, the work is not difficult.

An inspector who succeeds is diplomatic and educational in his methods; but the beekeepers realize that he is backed up with sufficient authority if he needs it, and authority has to be shown in very few instances.

There is a certain amount of bluff in us all; and it is amusing to watch some people try to bluff the inspector, endeavoring to find out whether he means business. I have had farmers tell me that they would not do as directed unless they had to; and when told that is would be necessary for them to do the same as their neighbors were doing they agreed to it without any more objection. One man told me he wanted to know what authority I had, because he was not going to do any more than he had to; and when thru with my instructions he laughed and said he was just trying me out.

A few bonfires, where cleaning up is not promptly done, have a very beneficial effect, for the whole neighborhood soon hears of it.

In burning diseased material, we always endeavor to save anything of value that is possible. Thoro work, even tho it may seem rather destructive, gives the most lasting satisfaction, and these districts are the ones where the inspector is most appreciated in succeeding years.

The inspectors do in many counties examine nearly every apiary in the county, and the educational value of talking with and advising beekeepers is greater than can ever be reached by any other plan. But a small percentage can be reached thru institutes—we need both methods—but the personal contact of the inspector with the beekeeper is pretty much the same as that of the county agricultural agents advising with the farmers. More personal contact and less farmers' institute work will meet with better results than more extension work and less inspection work. We do need better-trained inspectors, and a combination of educational endeavor with the inspection work is advisable. The actual meeting with the beekeeper in his own apiary by the inspector is the great strength of the inspection work. The inspector should have time to demonstrate the best methods of disease treatment, and also some of the best beekeeping methods.

One of the most helpful ways is for one beekeeper to get several of his neighbors together and look over their bees together with the inspector, compare notes, and have a miniature field meeting right there.

There are several ideas expressed by Mr. Ames that should be answered. The careless beekeeper will never be eliminated. The stray swarms are caught about as fast as foul brood cleans them out. Thoro inspection is keeping disease under control where the majority of the beekeepers are of the careless variety. A few learn from the inspector, but the majority have too many other irons in the fire to pay much attention to bees.

Mr. Ames' idea seems to be that educational effort should supplant inspection laws and inspection work. If he really thinks this, as the editor's quotations lead one to believe, it cannot be too strongly condemned. We must improve the inspection methods, so they will be highly educational; but the individual responsibility of the beekeepers to the welfare of their neighbors yet needs enforcement. We could get nowhere if we tried to enforce our city health ordinances by educational methods only. There must be power behind any effective effort, whether it is bee-disease control or international treaties.

Boulder, Colo.



The first meeting of the beekeepers in Burke Co., N. C., at the apiary of L. E. Webb, Morganton, N. C. A splendid lecture and demonstration was given by G. H. Rea, just recently assigned to the state. Mr. Rea made such a hit that his spring trip will be anxiously awaited. The good results of his work are already being felt and a county association is under way.

GOVERNMENT EXTENSION WORK IN NORTH CAROLINA

BY L. E. WEBB

While North Carolina ranks high in the number of colonies in the state it is far below in the production of honey, due to the fact that so many bees are neglected, being kept in box hives. Furthermore, a great deal of the stock is black, and weak at that.

Mr. Geo. H. Rea, the new government expert, is making a hurried trip over the state to get familiar with the different conditions in the mountains and lowlands. We did not have a chance to advertise his visit at Morganton the first week in October; but nevertheless we had a nice field-day meeting. Mr. Rea gave an excellent demonstration and lecture in my apiary. A county organ-

ization is to be formed. Mr. Rea made a hit with the beekeepers, and every one is much elated over the fact that the state is to have him permanently. His headquarters are at Raleigh.

Mr. Rea is enthusiastic over the prospects and possibilities in North Carolina. His first great task will be to bring about the use of modern methods and equipment. He has issued a warning that, owing to the extremely wet season, at least half of the bees in western North Carolina may die this winter unless they are fed to supply stores to carry them over.

Morganton, N. C.

A GOOD SHOWING FOR COMBLESS BEES FROM THE SOUTH

BY S. H. BURTON

The past season has been one of the very best from the standpoint of honey production and increase. Bees are going into winter quarters in excellent condition with plenty of stores of clover, bluevine, golden-

rod, and some aster honey. The early frosts stopped work in the supers and sent the bees scurrying to the brood-chambers to hold the heat necessary to protect the brood. I have just finished taking off all

supers today, Nov. 8. The weather is mild, and the temperature is around 70° F. The bees are flying well, and are still working on a little aster that was protected in sheltered locations.

A sharp freeze or two does not seem to hurt the flow of aster. I found considerable nectar in the unfinished sections we removed today. As this aster honey granulates quickly it is a puzzle to know just what to do sometimes with these nice unfinished sections partly drawn out with some nectar in the combs. It is pure waste to try to carry this honey over in the uncapped sections, as it soon granulates; and if put back on the hives next spring the bees carry it out and dump it in front of the hive. If the foundation is pretty well drawn out and filled, but not capped, we cut it out immediately and sell it to the home trade to be used up as quickly as possible. If the foundation is only about one-third drawn, and contains some nectar, I figure that the comb in its present shape is worth more than the nectar contained therein, and we usually carry these over to be put back on the hives next spring as bait sections. Aster yielded very slowly this fall, and was extremely late in blooming.

Bluevine in the river-bottom cornfields made an excellent yield of pearl-colored honey, and our beekeepers here are looking more and more to this plant as a main crop yield. It stays in bloom fully as long as white clover, and I believe it is a better yielder, not being subject to the whims of the weather as much as white clover. There is no killing this plant out in our river-bottom cornfields, and it is held in check only by the cultivator. The minute the corn is laid by, which is usually about July 15, this plant commences to

climb the cornstalks; and by Aug. 1 it is winding around the young ears of corn, and reaching across the rows shaking hands with its neighbors. By Aug. 15 the plant is in full bloom, and continues to bloom till frost. It is very tender, and the first light frost puts it out of business for another year. I moved the greater part of my yards to the bottoms this summer in order to catch this yield. Thousands of acres of river-bottom cornfields give unlimited pasturage, and I consider this plant more valuable than sweet clover as a honey-plant.

This season I tried the experiment of sending south and buying one-pound packages of bees and queen; and I wish to say that I am well pleased with the results. Fifteen one-pound packages were purchased, and, barring an accident to one package, they all built up to good strong colonies and yielded considerable surplus. However, one swallow does not make a season, and I would not advise amateur beekeepers to go at this proposition too strong. Several factors must be considered in the results which I obtained. In the first place I believe I received an extraordinarily good lot of bees. They were very gentle and great hustlers, and they had vigorous young queens. They were put in hives containing drawn combs on which bees starved to death last year. Last, but not least, we had an extraordinarily good season. The bees arrived April 15, just as apple was blooming, and by July 1 these one-pound packages began to store white-clover honey in the supers. They were then moved to the river bottoms, where from one to three supers were secured from each colony. Next year this same stunt might prove an absolute failure, the biggest factors being the queen and the season.

Washington, Ind.

KEEPING COMB HONEY IN FLORIDA

BY E. G. BALDWIN

To be sure! Everybody knows that there is not a whole lot of comb honey produced in Florida—that is to say, by large producers in any great numbers. While no exact figures are at hand, probably not one producer in ten is in the comb-honey business. With the exception of one or two extensive apiarists hardly any beekeeper attempts anything but extracted.

There are three very cogent reasons for the excess of the extracted-honey production over that of the comb honey. First, the long distance from large markets, or comb-

honey centers. Rates are high and weather often very warm, and distances great.

Secondly, the summers are long, warm, and damp. So, also, during much of the winter season the dampness is in excess, and the weather warm—warm and cool by changes. In such weather, as any beekeeper knows, combs, full capped, will tend to absorb moisture, and this excess of moisture will cause the honey to become thin, and to bulge the cappings; the result is leaking or “weeping,” as it is termed, or “sweating.”

Thirdly, the wax-moth makes holding-over of combs very hazardous. Not only is it exceedingly problematical to keep combs of honey over from the spring to the fall, but also it is only less so to keep them thru the winter. Our friends north of Mason and Dixon's line know relatively little about the ravages of this pest. In Pennsylvania we have left combs standing in hives, entrances wide open, for three weeks at a time, in midsummer, and have often under such conditions found not a single moth-web. We should like to see any one try that here (rather, we should *not* wish them to try it). Here, three days are enough to infest combs with tiny webs. In a week they will be alive with big fat larvæ—the dull gray larvæ of the wax-moth, with the voracious appetite. In two weeks a hive of empty combs left exposed will be hopelessly ruined, and in a few days additional nothing will be left but masses of webs in galleries and sheets.

The hive-bottom will be half an inch deep with debris, mostly dark-brown pellets, and the side walls of the hives, the rabbets, and the frames, will be built solid with cocoons, so dense and so closely joined that they can be pulled off in solid sheets. The soft pine or cypress wood of the average hive, after such an ordeal, is pitted, scarred, and worm-eaten, till it resembles a dead pine log eaten away by the sawyers or borers. Even the projecting ends of the tops of the frames will be eaten clear thru and break with the least touch.

One can easily see what a problem it is to attempt the keeping of comb honey in such a climate. Not long ago a letter came from an amateur apiarist in the central part of the state. We append a portion of this letter:

In looking over some sections in cartons which I have had in a dark room, and which I was saving for later use, I discovered that the honey was leaking. A careful examination showed signs of webs and worms in every section. I immediately placed the sections in supers, and put them back on

top of a strong colony, to be cleaned up. It is fine palmetto honey, and rather expensive for winter stores.

We wrote back at once about as follows:

I am afraid you have made a mistake in putting the honey on top of a strong hive of bees, if you expect to save any of it for market or table use. I am inclined to think the bees will open many cells, and perhaps "clean out" and remove all the honey, if, as you say, the combs are already leaking. In such circumstances the bees are likely to clean them up with a vengeance.

Then we told him of our experience, and our efforts to keep comb honey six or more months; and while the amount kept at any one time was not great, still the results are satisfactory. So we detail it here for what it may be worth.

We first put the combs into a tight cabinet or case, and kill all live insects or larvæ by a single treatment of bisulphide of carbon, by the usual methods. Then about ten days after the treatment (the combs remaining all that time in the tight box) each case of sections is wrapped in heavy wrapping paper, several thicknesses of it, and in strips large enough to wrap over and fold up all around, under corners, top, and bottom, thereby making a completely moth-proof package. The packages thus wrapped are then placed on a shelf in the kitchen, as near the ceiling as possible, and almost above the kitchen range, where the air is almost always warm and often very warm. We find that comb honey thus treated and preserved will keep intact all winter—no moth, no leaking, no candying. It seems that a specially warmed cabinet could be constructed along lines similar to the plan here suggested, provided the amount of honey were sufficient to warrant artificial heat. We feel confident the plan will work. We have tried it and are still doing it in a limited way.

To recapitulate in an alliterative way, the enemies of our comb-honey production in Florida are miles, moisture, and moths.

Deland, Florida.

NATIVE HONEY-PLANTS OF NEW ZEALAND

BY W. B. BRAY

It is a peculiar thing that, while there are no native honeybees in New Zealand, most of the native plants are honey-producing. Honeybees were introduced here by missionaries a hundred years ago, and they thrived exceedingly on the native flora. The following are some of the native flow-

ers of my district. They all help the bees to build up for the clover flow. The fuchsia and the kowhai are the most valuable flowers.

1. *Fuchsia excorticata*.—Maori or native name kotukutuku for tree, and konini for fruit. Shrub or tree 10 to 45 ft. in height.

*Fuchsia excorticata*

Leaves silvery beneath; lanceolate or ovate lanceolate; flowers drooping, one inch long; calyx dark purple, petals red purple; pollen blue; berry oblong; flowering period

*Parsonsia heterophylla*

August to December. This tree is most valuable for its honey and pollen which are a never failing standby in the spring months owing to its long period of bloom.

*Sophora tetraptera**Myoporum laetum*

One of my yards built up wonderfully and stored considerable surplus from this source before clover commenced to yield. It grows best in damp places along the bottoms of gullies and small creeks. I cannot say whether it would stand the severe winter of the middle states. It will stand a certain amount of frost, but I have seen the young leaves cut by a severe late frost. The flower is not as handsome as its South American cousin, but it is more valuable to the beekeeper as a spring stimulant.

2. *Sophora tetraptera*, yellow kowhai, a handsome tree attaining over 40 ft. in height; pinnate leaves; large gold-colored blossoms; trees often bare of leaves in spring; flowers produced in axils of leafless branches; calyx greenish. It blooms in September and October. The tree grows best on dry stony places. It is slow-growing, but produces a very hard and durable timber. The flow of honey and pollen from this source enables us to make an early start with queen-rearing operations. The photo shows year-old seed-pods, and the new pods just forming.

3. *Parsonsia heterophylla*. Native jessamine. This is a climbing plant which produces great clusters of pale-cream sweet-scented blossoms in October, and the bees work hard on it for honey while it lasts. The seed is produced in long pods. A seed with wings can be seen on one pod in the picture.



Muhlenbeckia adpiessa

it yields honey well. It grows readily from seed, and comes up thick after a forest fire. The timber is useless, and cattle often get poisoned by eating the leaves.

5. *Muhlenbeckia adpiessa*. A large rambling climber with very small green flowers which the bees work on in October.

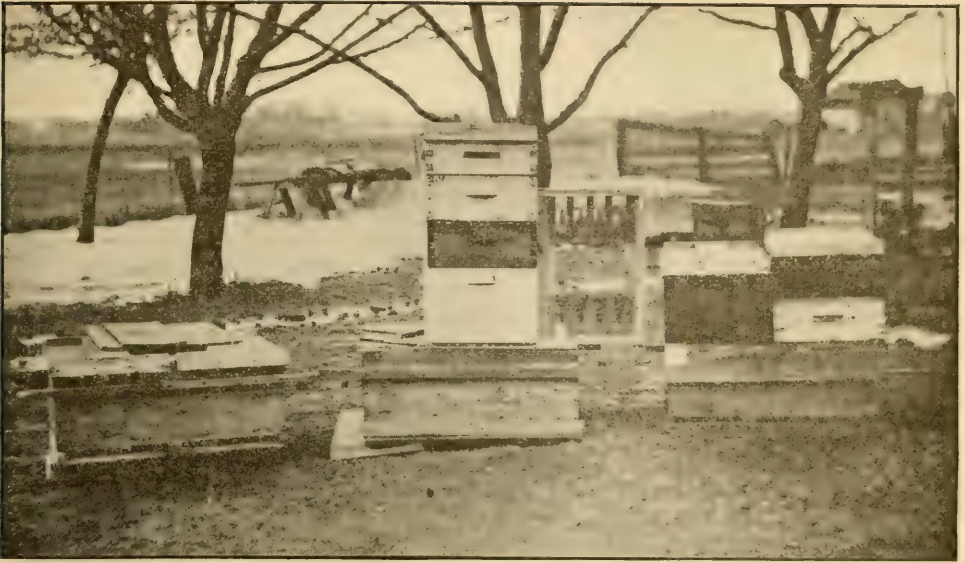


Leptospermum scoparium

6. *Leptospermum scoparium*. — Native name manuka, altho it is called tea-tree by settlers. This is a sort of shrub which grows on poor soils. The blossoms vary in color from white to pink. There is a tree which has similar but smaller white blossoms. Both varieties bloom in December, and the bees work them both until the clover yields honey. It is not a desirable honey, being dark and strong-flavored, and too thick to extract. The honey in its purity has a strong resemblance to Scottish heather honey. The shrub has been called the New Zealand heather, and a whole hillside in bloom makes a very pretty sight. In some parts of New Zealand fair quantities of this honey are produced, mostly in sections.

Wainui, New Zealand.

4. *Myoporum laetum*. Native name *ugaio*. A large tree (30 to 40 ft.) which blooms in October and November. The flowers are inconspicuous. Some years



J. P. Blunk's Long Idea hives, the size of two eight-frame hives, side by side.

MY EXPERIENCE WITH A SIXTEEN-FRAME HIVE

BY J. P. BLUNK

There has been some discussion regarding extra-large hives and double-story eight-frame hives. My latest plan is to use a sixteen-frame hive which is the full width of two bottom-boards or covers side by side. Notice in the photograph that one of the hives stands on two regular eight-frame bottom-boards, and that it is covered with two regular eight-frame covers. There is room for sixteen frames and a division-board.

These large hives about which I am speaking are fine for comb honey. The first year, however, colonies in these large hives do not make as much finished honey as they do in subsequent years. The large colonies build up faster and soon become the most powerful colonies in the yard. Such colonies store more, of course, than colonies in small eight-frame hives. I usually put on two supers at a time side by side, and I am not afraid later to put another super on top of each one as there are bees enough to fill four supers and then some.

If not looked after, the large colonies will swarm; but the treatment to prevent swarming is somewhat different from that applied to colonies in smaller hives. In a large hive there is always plenty of room. One can remove a comb of honey from the far end of the hive, and by so doing make

room for a comb of sealed brood, the space provided by the removal of this brood being filled with a frame of foundation. Room can be made at each end of the hive in this way; but when combs of brood are pushed to the outside it is important to see that they do not contain larvæ small enough for building queen-cells. Such combs are so far at one side that the bees sometimes take delight in building queen-cells on them about the time the white-clover season ends.

I have the entrance of each bottom-board open full width, thus providing an entrance the entire width of the double hive. These large colonies need a lot of ventilation, and no wonder, for there are so many bees. Some of these large colonies are ready to swarm as soon as those in small hives. I never saw big rousing colonies until I had these large hives.

When it is time to carry the hives into the cellar two boys can carry one of the big ones by means of the long handles extending out at each side, and do it easier than a man could carry a single eight-frame hive.

If a double-story eight-frame hive is used, and the bees are crowded down into a single story when supers are put on, then is when the trouble starts, as this procedure is so likely to cause swarming. By the plan I

have described, this danger does not exist; but I know one can secure more sections from such a hive than from a two-story

eight-frame hive. I find it necessary to require these large colonies every year. Moorland, Iowa.

COUNTING BEES AUTOMATICALLY

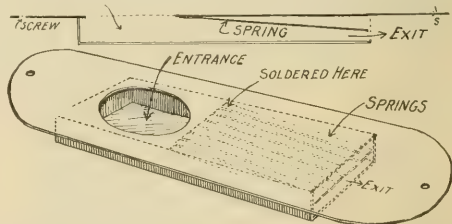
BY DOUGLAS D. BREARLEY

The engraving shows my "bee-meter" which I made out of an old watch. Before describing it I might as well say that it is not a complete success. As you will see, it works on the principle of a bee-escape; but instead of the bees passing between two side springs they pass under one spring which is suspended, near the inlet hole, and which terminates at the center of the neck in a narrow passage. Attached to the end of the spring is a rod which works the small lever of the watch, the wheel with the hairspring being, of course, removed. The bee, in passing under the spring, lifts the rod, which springs back into place immediately after the bee has passed. The lever has to be lifted 150 times to register one minute on the dial, and to arrive at the number of bees which have passed thru, it is only necessary to multiply the number of minutes registered by 150. Of course it is necessary to remember the former position of the hands.

altering the shape of the spring that fault was done away with, but another equally bad was encountered. One bee would sometimes register twice, once for the thorax and once for the abdomen. And so it stands, a novelty, but of no practical use until, perhaps, some beekeeper with the skill of a watch-maker completes the job.

A NEW MULTIPLE-EXIT BEE-ESCAPE.

My efforts have not been quite in vain, however, for my meter gave me an idea for a bee-escape which is a great success. The

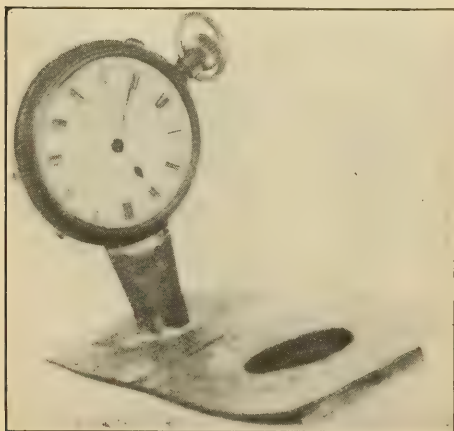


details are plainly shown in the drawing. With this escape I have cleared a crowded super in two hours. There is not much chance that it can be blocked by dead bees.

Subiaco, W. Aust., Dec. 8.

[An escape having two exits is certainly very much safer than one having only one. It is a question, however, whether more than two exits are any material advantage. The Porters some years ago demonstrated that a multiple-exit escape is no faster than a single-exit escape. The danger of clogging by dead bees or because of propolis would certainly be reduced; but is there any appreciable danger of this in case of one having a double exit?

The device for counting bees would be interesting if it could be applied to the entrance of a hive in order to record the flight of the bees in and out. If it would work both ways the total result would have to be divided by two, assuming that each bee came back. The number of bees in the hive could not be ascertained in this way, of course, for the young bees would not be coming out; and, furthermore, the field bees would make several trips. But such a device would be valuable if it could be perfected, in order to record the frequency of the bees' flight.—Ed.]



A device for counting bees; 150 bees passing thru the escape cause the hand of the watch to register one minute.

This device works very well when the bees are not in a hurry to get out; but, as is always the case when the bees have been separated from their queen and brood, they are in a great hurry to get out, with the result that they are so close together the spring does not get a chance to come back into place every time. By

THE DISTANCE BEES FLY

BY LOUIS MACEY

"The distance bees will fly for nectar" has been thrashed over a lot, but just lately I have been wondering if it may not be one of the most promising fields for investigation that we have. For years I have read in the books and journals such a jumble of views, assertions, proof, and "positive proof" that they would easily go 5, 6, and even more miles, do good work at 4 miles, also that they would starve with plenty of nectar-yielding bloom only $1\frac{1}{2}$ miles away, do no good at over a mile, I have been interested and often amused.

But among those who differ so widely are quite a number whose names loom big in beedom, and not at all the kind with whom one might get funny, so I just sighed and laid it up to that inscrutable enigma of "locality" and let it go at that. I also refrained from saying anything about my own experiences, for what's the use?

But now comes Mr. Chadwick, page 149, Feb. 15, 1916, with the firmly fixed idea that any perfectly healthy bee ought to go five miles and even ten; also "proof" that California bees at least will do splendid work at three, four, and five miles, with a strong presumption that the bulk of 60 lbs. per colony came from seven miles away.

Mr. Chadwick says, "If Mr. Baldwin's bees will not go one mile for nectar I am convinced there must be *something wrong with his strain of bees*" (italics mine).

Now that disturbs me; and if, perchance, we have been making a scapegoat of locality and saying "no use" when really the strain of bees has something to do with it—then we ought to know it; for California is not the only place where wide-ranging qualities are desirable. Indeed, I question if there is a single trait for which we have been aiming to breed that is more desirable than the ability or desire or will, or whatever it is, that will lead our bees to extend their flight even half a mile if necessary.

For some one to tell how long or how short a distance his bees will work under his conditions may be interesting to the rest of us, but not very profitable. If, however, some one has observed his bees working further afield than they used to, and if there is reason to believe that this has come about from a change of stock—different bees—rather than a change of pasture conditions, then we find something definite.

We have all noticed that some colonies work better when nectar is scarce than others. Is there a chance that this is be-

cause they range wider and have a monopoly of the bloom the other bees don't get to? My own experience has led me to believe that it is a matter of habit superinduced by locality. Ordinarily my bees do not need to range over a mile; but once or twice the grape bloomed on the Towhead Islands in the river when there was not much else doing. I myself from the river-bank could smell the delicious perfume of it, and I knew it was abundant. The low brushy islands were in plain view of my apiary with no "intervening timber, brush, or hills," but my bees never went after it, tho there was only a mile of land and less than half a mile of water between.

But the most striking instance occurred in 1914 when sweet clover was just at its best and the nectar just rolling in. A terrific hailstorm came down on us from the northwest, and in two hours' time or less there wasn't a blossom nor even a leaf left. Wooden hive-covers were split, and metal ones were all dented. Even the twigs of the trees were beaten off, and all that was left of the sweet clover was a pulp of stems and leaves among the hail, which was some four inches deep over the ground. The paths of such storms are generally comparatively narrow, and at a mile to the south and west there were a few straggling blooms; a mile and a quarter there were plenty, at a mile and a half the sweet clover was practically untouched, and white with bloom. But, tho it is a perfectly level bottom with not a stick or stone intervening, my bees never went to that bloom, and it just made me cross to see them loaf and fight and try to rob, with all that bloom so near.

It certainly seemed as if they lacked ginger; for with the compound eyes and all kinds of olfactories the books tell about they certainly ought to have seen or smelled those blooms; and even if they had gotten their daily grub out there and carried home only one little load a day, it would not have looked so shiftless.

What is the answer? If I could have gotten just then a colony of Mr. Chadwick's bees—used to ranging wide across canyons and barren land—they no doubt would have gone right after that nectar and made my bees ashamed of themselves. Had I gotten one of Mr. Chadwick's queens six months prior, would her bees have "got the habit" of short-range working the same as mine? or would the long-range

instinct have been inherited and persisted? and, if so, how long would it persist under my normal conditions?

If wide ranging is a trait of certain stock, and can be inherited, then I have

never yet gotten any of that kind of stock, tho I have bought queens from many different breeders. Some one else, however, may have had different experience.

North Platte, Neb.

MY SUPERSTITIOUS NEIGHBOR

BY A. B. M'GUIRE

One swarming season my neighbor (whom I will call George) successfully hived a stray swarm of leather-colored Italian bees. I can still see him standing by the old box hive, with a cotton sheet over his head and body, pounding upon the hive and whistling like fury—just a continual whistle, when he would stop to get his breath. After the majority of the bees were inside the hive he got three small stones and placed them on top of the hive, and then went away and left them.

When George proceeded to take the bees home he asked me to help him. We cautiously approached the hive and plugged the entrance; then we gently lifted it and carried it across the fields to George's home.

"George, what did you put those three stones on top of that hive for?" I said.

"For good luck."

"But how can those three stones bring you good luck?"

"It is a great secret which you probably don't know; and if I tell you, no luck will follow, because a woman has to tell a man the secret if good luck is to follow."

"Well, George, I don't believe in anything like that."

"Well, I do, and my grandfather did, and he always had good luck with bees."

"If you have good luck with this colony of bees will you give me a swarm next year?"

"No, I won't give it to you; but I'll sell it to you for five cents. If I give it to you I shall give away my luck, and I won't do that."

I agreed to this and departed.

As the cold days of winter came, and brought with them great blizzards and zero weather, a death-like appearance seemed to settle over the old hive in George's back yard. There was no sign of life there; but as the dawn of another spring came and brought with it new life for every living thing, the bees awoke from their death-like slumber to take advantage of it.

Swarming season came again, and the bees swarmed. They were successfully hived, and I purchased my first colony of bees for five cents.

George had his lucky stones placed upon

the hive; but before he would let me take the bees he took the stones off and put them in his pocket, saying as he did so that he must not let them go with the bees or he would lose his good luck. Well, I got the bees home at last, and put them in the yard. They did well during the summer, making about fifty pounds of surplus honey; but during the next winter they died. George said something like this: "I thought you would have no luck with them. Now I tell you what I'll do. I will sell you another swarm for ten cents, and also make you lucky with bees."

I agreed to this; and when swarming season came, one forenoon about ten o'clock I happened over at George's place just in time to hear a wonderful racket, and a noise which seemed to come from the further side of the orchard. I hastened around the house and climbed over the fence; and as I looked down thru the orchard a great sight met my eyes, for there at the further side was George and his family pounding old tin pans and whistling as tho they were serenading some newly married couple. "Hello, George, for goodness' sake what is all this noise about?" I asked. "Are you having a serenade all by yourselves?"

"No, I am just trying to hold back these contrary bees. They took it into their heads to leave me this morning; but I guess I showed them a different stunt. This is the best thing that you can do to settle a swarm of bees. You just try it some time and see if it isn't." This was another new one for me; but I said nothing more, and George proceeded to hive the bees. I got them for ten cents—my second colony.

"Now," said George, "I am going to make you lucky with this colony of bees. Here are three stones which you place on top of the hive from west to east and you will have good luck."

The secret was then told to me, which is as follows:

Walk to the east three steps; turn to the south and walk three steps, and with each step to the south pick up a stone. Take the three stones and place them upon the hive from west to east, and good luck will follow.

ECHOES OF THE ILLINOIS BEEKEEPERS' CONVENTION, NOV. 15, 16

BY E. R. ROOT

The Illinois State Beekeepers' Association is the only one in the United States, except one, that enjoys the distinction and the favor of having state aid. The only exception, so far as we know, is the New York State Beekeepers' Association. The Illinois organization first started out with a state appropriation of only \$500, but is now receiving \$1000. A part of the fund is used for state bee-inspection work under the direction of the inspector, Mr. A. L. Kildow, and the rest is used in getting out a stenographic report of the "Annual Proceedings" of the convention, bound in cloth. The organization is making plans to enlarge its scope of usefulness. It is stronger than the National Beekeepers' Association; but numerically it is not so strong, probably, as the Ontario Beekeepers' Association of Canada and the state organization of New York.

The president, Emil J. Baxter, of Nauvoo, Ill., and the secretary, J. A. Stone, of Springfield, were re-elected. The morning session of the first day was occupied by the usual routine, while the afternoon session consisted of reports of A. L. Kildow, state inspector, Putnam, Ill., and a talk by E. R. Root, on establishing a trade-name on honey.

Mr. Kildow, with his score of inspectors, is doing some excellent work, not only in the line of elimination of disease but in educating beekeepers on how to keep bees.

The question-box was a strong feature of the convention. Mr. J. E. Pyles, assistant state inspector, received all the questions, which were then answered by various ones of the convention.

DADANT'S REMARKABLE SUCCESS IN SWARM CONTROL.

On the afternoon of the second day the editor of the *American Bee Journal*, Mr. C. P. Dadant, delivered an address on the subject of swarm control which attracted more than usual attention. The Dadants have for years operated their ten-frame Quinby hives; and while they produce large crops of honey, the amount of swarming they have is phenomenally low. See "Hives" in any edition of A B C and X Y Z of Bee Culture. During the past year, with 525 colonies in such hives, they produced 125,000 lbs. of extracted honey with only 25 natural swarms. The surprising thing is that this low percentage was due not to cutting out cells, but rather to the large hives, plenty of super room,

plenty of ventilation, shade, young queens, exclusion of drones, and spacing the combs $1\frac{1}{2}$ inches from center to center. While Mr. Dadant admits that in the production of extracted honey the swarming problem is less complicated than with comb honey, yet when we consider their crop of honey, and the fact that they waste no time in cutting out cells, we must admit that they have gone away beyond the average beekeeper in swarm control.

A neighbor of his about two miles away operated the regular ten-frame Langstroth hives, and had thirteen swarms from eighteen colonies. While the difference in hives of course does not account for this difference, Mr. Dadant makes the point that a twenty-frame two-story Langstroth hive usually requires a queen-excluder to keep the queen out of the upper story. When the egg-laying powers of a queen are hampered, the colony is more inclined to swarm, he says. With their ten-frame Quinby hive they have little or no trouble from the queen going up into the extracting-supers, for the simple reason that the large capacity of the brood-nest with its large combs is able to take care of a good prolific queen. Such a queen will usually require more than a ten-frame Langstroth brood-nest, and, unless held down by the perforated zinc, she will go above. Mr. Dadant sets forth seven reasons for swarm control.

1. An ample brood-nest and super room.
2. Ventilation, by raising the hive up on four blocks.
3. Providing ample shade by means of shade-boards or roofs.
4. Plenty of empty combs.
5. Young queens.
6. Elimination of drones by cutting out all drone comb and by using only worker foundation.
7. Spacing the combs $1\frac{1}{2}$ inches from center to center in the brood-nest rather than $1\frac{3}{4}$.

On this last point Mr. Dadant said they had been for years using $1\frac{1}{2}$ -inch spacing, not supposing that it had any particular influence on swarm control; but when Mr. Allen Latham called his attention to that one point he began to think there might be something in it, because others using large hives with narrower spacing had a larger percentage of swarming.

President Baxter, who had been for years using the Dadant system, stated that he

secured last season 27 barrels of honey from 72 Quinby-Dadant hives, using the same principles. The number of swarms he had was no larger proportionately in spite of the fact that he did not cut out any cells. His main business is the production of fruit. This was an unusual season for both fruit and honey. Help was scarce, and it was impossible for him to give the bees much attention. All he did was to give more room and shade, and the bees did the rest. If he had been using small hives he could not have done this he argued.

We have always felt that the large hives used by the Dadants were ideal for the production of extracted honey; and we found years ago that by using two eight-frame hive-bodies, letting the *queens have access to both stories*, we practically eliminated all swarming in the production of extracted, and reduced swarming in the production of comb honey, by crowding the bees into one story just at the time of putting on sections. Dr. C. C. Miller follows the same plan.

CARBOLIC ACID FOR RIDDING SUPERS OF BEES.

The question-box called forth a lot of lively discussion, as it always does. Among other questions was the use of carbohc acid as suggested by J. A. Green in GLEANINGS on page 351 for May 1, this year. Some

had not succeeded in driving the bees out of the supers by the use of carbohc acid. Others had found it to be a great success. The fact that some good beekeepers had succeeded rather leads one to believe that there must be something in the method. Doubtless our readers can do well by following out exactly the plan outlined by Mr. Green.

BEES AND FRUIT.

President Baxter, in the course of the discussion, gave some invaluable testimony showing how indispensable bees are as pollinating agents. When the weather is bad, so the bees cannot get to the trees at the proper time, the quality and quantity of the fruit are considerably cut down and Mr. Baxter is mainly a fruit-grower.

One of the active men in the association is Dr. A. C. Baxter, a physician and surgeon, but in no way related to President E. J. Baxter. He is an enthusiastic backlot beekeeper. He gave us some valuable facts on the subject of honey as a food. Later on we hope to present what he had to say on the subject at the convention. Dr. Baxter is a man who knows how to go after legislatures and to get what he is after. The National could well afford to send him down to Washington to get an increased appropriation on the one now granted to the Bureau of Entomology for extension work.

NO MORE SECTIONAL HIVES FOR HIM

BY ALFRED L. HARTL

Five years ago I was persuaded by different articles written on the subject of divisible brood-chamber hives that the hive had merits, so started to test them with a few new swarms hived in them. The results were very satisfactory, for that year was a year of plenty.

The next season, as I desired to increase my apiaries considerably, I formed 250 new colonies in the divisible hives. This has proven to be the greatest mistake I ever made. In a year when bees continue to work thru the summer the divisible or sectional hive does fairly well; but when a year comes with a long dry summer they are down and out. In such years the queens decline in egg-laying, and sometimes discontinue altogether during the dry summer, which consequently weakens the colonies; and when the fall honey-flow comes, which is usually fairly heavy in my locality, the bees will start to deposit the honey in the upper section and in a short time the queen is crowded out of this upper section altogether. As a result these colonies will only hold their own, and the following spring they are considerably weaker than those in the larger hives.

Some advocates of the sectional hives will advise inserting another section with empty combs. This I tried but without good results. Apparently the bees do not hesitate to store their honey above, but it is hard to force the queen to cross the top and bottom bars to deposit her eggs in the second story in the fall when the nights begin to get cool.

There are many other objections to the sectional hives, such as the greater difficulty of finding the queens and the nuisance of burr-combs. Normal colonies will not, as a rule, leave an empty space in the brood-nest; but with the sectional hive in the spring there is a bee-space in the middle of the brood-nest where I usually find a row of drone-cells with brood, which makes the handling of sections or frames anything but desirable. Especially do I find this trouble with the narrow top-bars.

I have tried the sectional hives alongside the regular dovetail hives in my different apiaries for a term of four years, and I have come to the conclusion that in my locality the sectional hive is anything but satisfactory.

Elmendorf, Tex., Oct. 2.

Heads of Grain From Different Fields



THE BACKLOT BUZZER.

Little Rosie, who lives next door, said her teacher promised to bring a tiny dead bee to school tomorrow and by the warmth of her hand bring it back to life again. Rosie says she can do it all right if she uses the same hand she warmed Tommy Smith with yesterday.

AMONG DECEMBER BEES.

BY GRACE ALLEN

These days of war and throneless kings,
And carelessly dishonored things;
These days of tragic lands and seas,
There's comfort in the quiet bees.
There's comfort just to lay aside
This harrowing distress,
And all the things the world has cried
So long in anger or in pride,
Or from its bitterness,
And walk untroubled and at ease,
Alone, among December bees.

The winter, like a frosty night,
Creeps cold across their fields of light,
And all the singing summer hours
Are gone, and gone are all the flowers.
Yet something, dauntless faith or will,
Or hope's far-seeing eyes,
Or instinct (scientific still!)
Yet something, call it what you will,
Has made them very wise.
And I, a self-invited guest,
Find peace and rest—find peace and rest.

And yet these winter ways they keep
Are not indifference, nor sleep;
Within each dusky-hearted hive
Unconquered moods are still alive.
Unceasingly the loyal wings,
Aquiver to and fro,
Keep warmth and life triumphant things,
No matter what the winter brings
Of weariness and woe.
And so beneath the barren trees
I find great comfort in the bees.

The Leather-Colored Were More Resistant than the Golden.

As there is so much written about foul brood and Golden queens I will give my experience. Several years ago I went over into York state and bought 39 colonies of black bees in old box hives. I was told the bees had been examined by the inspector, and pronounced all right. I think they were as they were heavy with honey. I drove most of them into my hives in the cellar. When I set my bees out I put out several hundred pounds of that honey and let all my bees take it in.

About the middle of June I found my bees were not doing well, and there was a terrible stench in the yard. I never had seen any foul brood; but by looking at a little book that Inspector Wright from New York had given me, I saw very soon what the trouble was.

I had about 20 colonies of golden Italians, and about the same number of the leather-colored. The rest were black and mixed. I found almost every colony but the leather-colored had foul brood. I therefore ordered 100 leather-colored queens. Of these I lost but two and they were just what I ordered.

I did not get any honey from the bees, and had to feed a good many; but I have never seen any trace of foul brood since.

C. M. Lincoln.

West Rupert, Vt., May 15.

[Our correspondent does not say which type of foul brood he had; but we assume that it must have been the European variety, as the American would hardly have disappeared in this way.]

Is it not probable that the Golden in question were not up to par?—Ed.]

Starch Paste that is Paste.

Take a little lump starch (about a dessert-spoonful) and mix with as little cold water as is necessary to dissolve it. Now pour on boiling water, stirring briskly all the time until the mixture turns to a bluish color and has the consistency of a moderately dense honey. Now set aside; and when cool remove, skim off top, and if it has set like jelly (which it is sure to do if properly made) you will have the best label or photograph paste

it is possible to get. A little practice will show you when you have used too little or too much boiling water. Of course this paste will not keep more than a day or so in hot weather—a little longer in cold weather—so we find it best to make it only in small quantities and just as required. This paste will adhere to anything and is immune to insect attack.

Phil Sommerlad.

Tenterfield, Spring Valley, N. S. W.

Forty Years of Beekeeping.

I commenced beekeeping in the spring of 1876. At that time I was using the American hive, made by King & Co., of New York city. I now have 120 colonies.



Apiary of J. T. Smith, Bellevue, Mich. Mr. Smith has been a beekeeper 40 years.



Log house erected in 1858, still standing and still serviceable.

The illustration shows the log house erected by my father, who moved his family into it in the fall of 1858. This house is still standing.

J. T. Smith.

Bellevue, Mich., Sept. 24.

An Experience in Wintering United Colonies.

I have always wintered in the cellar; but last winter, having read so much about outside wintering I made two boxes of shiplap lumber, each to hold ten colonies, with an eight-inch entrance for each colony. I wanted to make sure that the bees would winter, so I did a good deal of uniting as follows:

I made one colony from two in October by putting one on top of the other; then packed them in leaves ten inches on the sides and top, and three inches in front.

I had eight nuclei that were strong in September, having 33 combs of brood. These I put into four thirteen-frame hives and wrapped them with fifteen layers of newspapers, finally covering with tar paper, and wintering with a full entrance.

I next took five full-sized colonies, wrapped them in double carpeting covered with tar paper, and gave a full entrance.

I put two swarms in thirteen-frame hives, placed one on top of the other, wrapped them in fifteen thicknesses of newspaper covered with tar paper, and gave a full entrance.

Two other swarms were in eight-frame hives. I placed one of these on top of the other, also wrapped them in fifteen layers of newspaper, covered with tar paper, and gave a full entrance.

My idea was that the colonies would be so strong in the spring that they would be in fine condition for clover. In May I reduced the colonies in thirteen-frame hives to one story, to divide them a little later. The other colonies were left in the two stories until May 23, then were divided, and were in good condition for clover.

Carl H. J. Baumbach.

Fall Creek, Wis.

Dead Air vs. Packing Material.

I should like to know the opinion of those who have used both the chaff-packed double-walled hives and the double-walled air-spaced hives as to their results in outdoor wintering and their qualities as a summer hive. Will the moisture gather any worse in the air-spaced than in the chaff-packed hive in winter with a packed super on each?

Freeport, Me.

Harold C. Dennison.

[The Bureau of Entomology, Washington, D. C., conducted some experiments to determine the relative insulating value of dead-air space and packing material. The proof was conclusive, showing that double-walled hives using packing were much warmer, much less subject to internal changes of temperature, than the same hives with no packing between the walls. The ordinary beekeeper, unless he has careful measuring apparatus, may not be able to determine the difference; but difference there is, there can be no question. The dead-air spaces are not dead air. When the temperature on the outside drops down the air between the walls begins to circulate. The air next to the outer wall will crowd against the inner wall. This will make the temperature of the wall next to the bees cooler. If, however, the space is packed with chaff, leaves, or planer material, there can be no circulation of air in large volumes, because the air is held in little pockets.

Packing material is so cheap that any beekeeper who would leave it out between the walls would be making a serious mistake.—Ed.]

Stencil Dial for Nucleus Record.

The illustration shows the system that I use for keeping track of twin mating nuclei. I use two on each twin hive—one for each nucleus. These give me the condition



Q, queenless; C, cell; C-V, caged virgin; V, virgin at liberty; S, saw; L, laying; T, tested; M, mismatch.

of the inside in case I place a cell or a caged virgin in before removing the laying queen. I have been trying several plans and I like this the best of any that I have tried. I place two metal hands upon each dial. They are bent so that one passes over the other without interfering. I have a metal stencil for painting the letters and figures on the lids of the hives.

Baldwin Park, Cal.

H. M. Hess.

The Honey Method of Introducing.

Last summer I had several swarms cluster together, and so I had to find the different queens, as the amount of bees—four or five swarms—was too great for any common-sized hives. One queen that I found positively refused to stay in a hive. I then clipped her wings, put a little honey on her—enough to cover her about half—and put her on the alighting-board of a hive from which a swarm had absconded but still contained a few bees. I thought that, if she were accepted, I could then give more bees. On being placed in front of the hive, as she started for the entrance a bee attacked her from the side not daubed with honey. It was getting its abdomen in shape for a sting when about that time its “nose” came in contact with the honey. Of course it immediately forgot all about the queen and went after the honey (then I saw the point). When the queen disappeared in the entrance several bees were hanging on to her; but they were only after the honey. After a while, on going to the hive to see how things were going I found her sitting on the edge of the

alighting-board with several bees licking her off, after all efforts to induce her to remain inside failed.

Having a queenless nucleus I followed the method Mr. Clute gave F. M. Baldwin (Jan. 15, 1915, p. 66), immersing her completely in half a cup of honey and pouring her, honey and all, on top of frames of the nucleus. I watched her disappear between the combs, replaced the cover, and awaited results. The only strange thing about her was that it was at least a week or ten days before she began laying. Of course I do not think that the method of introduction had anything to do with this. I began to think that I had probably clipped an unmated virgin. However, there was soon enough proof that my fears in that respect were groundless. The short time it took for her to build up that small nucleus into a strong colony would seem to show that she was not hampered by the effect of any of her past experiences.

Berne, Ind.

Moody Brenneman.

Moving Bees on a Truck Without Screening.

I have sold my home and bought another, and shall have to move my bees a distance of 21 miles by auto truck. I can make the trip in 2½ hours, barring accidents and bad luck. Will it be necessary to screen the bees at all, or can I fasten them up tight for that distance? I will move them about the middle of next month, and the weather more than likely will be cold.

M. A. Aulick.

Bradford, Ky., Oct. 26.

[You can move your bees on the truck with or without entrance-screens. If the weather is a little cool, all that will be necessary will be to smoke the bees at the entrance to each hive, put them on the truck, and start on the journey. But before the load is started each entrance should be smoked a little, after which the trip can be made. You probably could nail wire screen over the entrances to prevent any bees from coming out, but if the weather should be a little warm and the colonies strong there would be danger that some of them would be smothered.—Ed.]

Some Record.

I had 10 colonies, spring count, increased to 12, which I have at present. I extracted and filled 50 dozen pints (Mason jars); sold 242 sections, also 80 lbs. chunk honey, and have all the honey we shall need until next season. The hives are very heavy. I should think there is not less than 30 lbs. in each hive for the bees to winter on.

I haven't lost a colony of bees for ten years—that is, in wintering, and I lay it to heavy stores. I give them from 30 to 40 lbs. I put a super cover over the brood-nest, then an empty section super, and fill an empty super with ground cork which I get from the stores when they sell grapes, paying 5 cts. for barrel and cork, and I have success.

Dover, Del., Oct. 26.

Wm. Maag.

GLEANINGS FROM QUESTIONINGS

T. C. J., Lake Cicott, Ind. I have some honey that has a queer smell, and it does not taste very good. Do you think it could be honey-dew?

A. Honey-dew honey is usually dark and cloudy—muddy-looking, in fact—and it has a mealy, bitter taste. There are certain kinds of fall honey that are very strong in flavor, but they are usually clear, even tho dark. Honey-dew nearly always looks dirty.

P. S., Epworth, Iowa. I am building a new honey-house with a bee-cellar under it. Will the odor of fresh cement injure the bees?

A. We do not believe the odor of the new cement would injure the bees in any way. The dampness would, provided the temperature remained very long around the freezing-point after the bees were in the cellar. Dampness combined with a low temperature always makes trouble. Probably it would be well to put a little lime about the cellar after you have it finished, to absorb the moisture.

A. G., Ben Avon, Pa. What is the proper weight of a hive—combs, bees, and all—at this time of the year?

A. It is difficult to give even an approximate answer to this question. Notice the different weights that Mr. Doolittle gives in his department in the last issue. You had better not rely upon weighing the hive, for this is too risky on account of the variations in the weight of the hive-body itself—bottom-board, cover, frames, etc. The only sure way is to wait until it is warm enough for the bees to fly, and then look over the combs rapidly. It would have been a good deal better, of course, to make sure about this before the middle of October.

T. C. J., Lake Cicott, Ind. When the white clover first started to bloom my bees went right to work in supers; but we had a spell of cold rainy weather, and they were not able to get out for four days, then as soon as nice weather came they started to swarm. All my queens are clipped, so I cut out all the queen-cells. The bees came out the next day again, so I took away all sealed brood—in fact, I took all combs except one and put in full sheets of foundation instead. That did not stop them from coming out. They came out and went back two or three times a day, and kept it up for four days. I left the supers on; but about all the bees do is to loaf and swarm.

A. (By Dr. C. C. Miller.) The fever for swarming seems to be a sort of cumulative affair. If you do something to thwart them, and it isn't quite enough to stop them, it seems to make bees all the more fierce for swarming afterward, and each move on your part seems only to make them more

determined. Some years ago one of my colonies swarmed, and I took away one or more of its frames of brood. It swarmed again, and again I took away brood; and as it continued swarming I left it each time with less brood, until I had taken away all its brood. Then it swarmed with nothing but foundation in the hive, and the only thing done with the foundation was the building of one queen-cell in which there was an egg! If, after it had swarmed the first time, I had left only one brood, I've no idea it would have had any further thought of swarming. If half its brood had been taken away two or three days before the actual swarming, it might have been sufficient; and if only one or two brood had been taken away when queen-cells were first started, it might have prevented swarming, or at least postponed it.

Years ago it was the rule that a colony never swarmed until the first queen-cell was sealed. Nowadays it is nothing uncommon for a colony to swarm with not a queen-cell sealed, or even with only an egg in a queen-cell. I suspect that the bees follow the same rule as of old, except when the bee-keeper does something in the way of prevention—not enough to stop swarming entirely, but enough to make the bees more and more stubborn.

There seems, too, to be a difference in years. Some years a very little will prevent swarming, while in another year the bees seem to be swarm-crazy. You seem to have struck one of the worst of years in this respect, and may never see its like again.

Now as to what shall be done. First, a "don't" or two. Don't think of doing any good by cutting out queen-cells and leaving the old queen in the hive, after the bees have actually swarmed. Don't count on cutting out cells as a certain preventive in any case. If done before queen-cells are well advanced, in some cases it will delay and sometimes even prevent swarming. Generally it will fail to have the desired effect. Don't leave supers containing honey on the hive containing the swarm. I'm not sure but that was the mistake I made in the case where the bees swarmed leaving empty foundation.

From all this it may be easily understood that the thing to do is to take vigorous steps at the outset, taking away enough brood either before or after swarming so that the bees will feel too impoverished to think of swarming out. That will mean that not more than one brood will be left if it be just before or just after swarming. If no queen-cells are yet sealed, taking away half the brood may discourage the bees from swarming. If nothing beyond quite small larvae is found in queen-cells, it is possible that taking away two brood may answer.

A. I. Root

OUR HOMES

Editor

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.—I. COR. 2:9.

Ye shall teach these my words to your children, speaking of them when thou sittest in thine house, and when thou walkest by the way, when thou liest down, and when thou risest up: that your days may be multiplied, and the days of your children.—DEUT. 11:19, 21.

I have before mentioned that, about sixty years ago, when but a boy in my teens, I started out to "educate the people (?)" by going around to schoolhouses and giving entertainments with electricity and chemistry with a home-made apparatus. I have lately been reminded by an old friend of years ago that in one of those lectures I declared that if we had an electric wire clear around the globe electricity would make the circuit in about *eight seconds*. Well, just now our town of Medina is in a sort of jangle in regard to the best method of lighting the village by means of electricity; and there has been so much misunderstanding and unnecessary criticism that my son Huber wrote a lengthy article for the *Medina Gazette* in regard to electricity and the different methods and plans for lighting towns and cities, etc. Well, Huber's talk about "alternating currents," etc., went beyond my depth, and I interviewed him in regard to the matter. A little later a grandson, only sixteen years old, gave his old grandfather some *further* instructions in regard to electricity, especially alternating currents. When I was his age, sixty years ago, I built a little *motor* that would produce an alternating current, but I did not know it. At the time, I thought an alternating current would be no good, and so I spent considerable time and study in converting the alternating current into a direct current.

Well, both son and grandson took considerable pains to instruct me in regard to the advantages of the alternating current. For instance, with this sort of current the electric impulse goes to the end of the circuit and back ever so many times in a second. Wynne says, in fact, that an alternating current ("60 cycle") will go from New York to San Francisco and back again sixty times a second.

Now, that is about all I have to say in regard to electricity just now. I have mentioned it because it emphasizes the fact that particular traits are inherited. Both of my sons and all of my grandsons have inherited more or less my early craze for electricity, chemistry, etc. Last eve-

ning Wynne came over to borrow my little specimen of radium. By the way, I have forgotten to tell the readers of GLEANINGS, as I did about once a year for several years, that "radium *still* radiates." Well, Wynne tells me it has been lately discovered that radium does *not* keep on radiating for ever and ever. He says it has been demonstrated that radium will play out or burn out in about 2500 *years*! So radium is not perpetual motion, after all. Well, now for the moral to the above.

The good traits in the father, as well as the evil ones, go along down thru the generations. Lady Eglantine's disposition to lay eggs, as we might say, everlastingly, bids fair to be inherited not only by her progeny but by her sister's progeny. By the way, I am going to have a big story soon about the way those Eglantine pullets lay eggs. In view of what I have been saying, shall we not still more earnestly *consider* that the things we do while here on earth follow after us away down thru untold generations.

Well, friends, the above is only a preface to what I wish to say in this Home paper. In our issue of Nov. 1 I mentioned three remarkable answers to prayer, and what came of it as the years went by. I am going to tell you still another, which I think I have mentioned already in years past.

About forty years ago, after quite a trade had been built up in queens, tested and untested, and also in queens imported directly from Italy, we had continual trouble about finding somebody fully competent to take care of our queen business. It needed a man who would not only be careful about making mistakes, but one on whom we could depend on being *absolutely* truthful. If he killed a particular queen by carelessness it was of the utmost importance that he should report the full facts in regard to the matter, as letting another queen take her place in order to avoid exposure might do somebody a great wrong. I wanted above all a sincere and *earnest Christian* to carry out my ideas and plans for the queen-rearing apiary. After repeated disappointments, caused, perhaps, a good deal because I could not give the apiary the personal attention it needed, I said one night as we were ready to retire, "Sue, we shall have to ask God to send us, or point out the way for us to find, *somebody* who can take charge of this exceedingly important branch of our business." In fact, I do not know

but I said it was almost the cornerstone of the factory and of GLEANINGS itself. Then we knelt down and I prayed about it; and, if I remember, I prayed with so much faith that I was almost on the lookout the next day for some glimpse of an answer to that prayer. I cannot now remember whether it was the next day or a day or two later, that a letter came reading something like this:

"Mr. Root, I have a very good place to work. I like my work, and my pay is good—better, I often think, than I deserve. But my employers are both profane and ungodly men, and I feel as if I could not stay with them any longer. I am interested in the bee business, and have been reading your journal. If you have a place for me in the apiary I will go and work for you if you give me enough to pay for my board until you think I am worth more."

The letter came from away off in Canada. I showed it to Mrs. Root, and told her it was the answer to our prayer.

Right here I wish to give you something I found in the *Sunday School Times* in our morning lesson. It so completely takes in the idea of prayer that I give it here:

Learn to habituate yourself to taking the least detail of your life's work to the Lord. He loves to be trusted, and nothing is beneath his notice. Take your plans and program for to-day, and lay them in his presence, seeking guidance, wisdom, and grace to carry all out for his glory. This adds a wonderful luster to life.

Of course I told the young man to come on. When he arrived I told him that, instead of discussing the matter of board, we would start him at a dollar a day. But when Saturday night came I said I should be ashamed to make it less than \$1.25. That was a fair man's wages at that time. The next week I said the same thing and gave him \$1.50; and as he made himself increasingly efficient and useful, he kept being promoted, with better pay, right along. Right here I wish to digress a little:

I have not only thanked the Lord for our two sons, but I have thanked him also for our three sons-in-law, who are all good clean men, right up to date, and professing Christians. I could honestly say a good word or many good words for each and all of them; but for obvious reasons I am just now going to confine my remarks mostly to one of them. Before I go further let me mention just one incident in the boyhood of this young Canadian, or this young man of whom I have been talking.

It is not at all strange that, after a time, our oldest daughter, then about seventeen, became interested also in the young Canadian with whom I was so much pleased.

Well, John (for that was his name) used to come up to the house almost every morning before the whistle blew, to get instructions about the duties of the day. One particular morning he stood on the doorstep, and hesitated until I said:

"Well, John, what is it?"

I think Mrs. Root came to the door just then, and then John commenced:

"Mr. and Mrs. Root, you have been very kind to me."

Then he hesitated until I said, "Well, John, we are very glad to hear it. But what brings the matter up just now?"

His bright ruddy face colored up for a little as he went on.

"Why, what I want to say is this: After all the kindness you and Mrs. Root have shown me since I have been with you, it would ill become me to go on with anything that might not meet your approval. Your daughter and I have of late been getting pretty well acquainted."

Then he stopped.

"Well, John, is not that all right?"

"Why, Mr. Root, it is all right if *you* say so. If not, do not hesitate about speaking right out."

I replied, "Well, John, if you and the young lady agree, that is all right; and I want to say furthermore that if I have ever in the past doubted your honesty and sincerity in whatever you do, this one incident dispels all such doubt."

As the years passed by, John, with Ernest, lifted the load from my shoulders, and permitted me to go to California, the Bermudas, Florida, and finally up into northern Michigan to raise potatoes. The business ever since John has been general manager has grown and paid a profit more or less. I have recently made notice of the marriage of Howard R. Calvert, their oldest child, and gave a picture of the baby, the first great-grandchild.

Just recently, on the 55th anniversary of our wedding, Miss Mildred Calvert was also married. Below is a sketch in regard to the wedding, written by our youngest daughter.

The wedding of Miss Mildred Calvert and Mr. Marshall Frye Bryant took place on Friday, September 29, at four o'clock, at the old Root home, now occupied by E. R. Root and family. Miss Eva McNaughton, of Oberlin, sang a selection from the Bridal Chorus from "Lohengrin," accompanied by Mr. Harold Smith, of the Oberlin Conservatory. Jean Boyden, Hall Kellogg, Helen Boyden, Alan Root, Marjorie Ainsworth, and Ralph Boyden held the white ribbons which formed the aisle thru which the bridal procession came. Little Elizabeth Boyden, as flower girl, led the way to the bank of green and white clematis at the east end of the living-room, followed by Katherine Root as ring-bearer. Mrs. Howard Calvert, in white net over pale-green taffeta, was

matron of honor, while Mr. James Hall, of Wooster University, was best man. The bride was beautiful in a white Georgette cr pe gown and a tulle veil fastened with lilies-of-the-valley, and carried a shower bouquet of white rosebuds. She was accompanied by her father, and was met by the groom at the bridal arch where Dr. Fritsch performed the ceremony, using the ring service. After congratulations, a quartette sang a song written by a friend of the family in honor of the wedding and of the fifty-fifth wedding anniversary of Mr. and Mrs. A. I. Root, grandparents of the bride. Then the guests adjourned to the Calvert home, where the wedding supper was served. Later the bride appeared in a going-away suit of navy-blue broadcloth, and the bride and groom said goodbye to relatives and friends. Before leaving, Mr. Bryant, who is a musician of unusual ability, sang "The Serenade," by LaForge. The couple left quietly by auto for the Root cottage on Lake Erie; thence they motored to Toledo and other points in Ohio. Mrs. Bryant is a graduate of Medina High School and Oberlin College. Mr. Bryant is a graduate of Green Bay, Wis., High School, and was a student for three years at Oberlin College and Conservatory.

MRS. L. W. BOYDEN.

The following is furnished by our eldest, Mrs. J. T. Calvert:

Mr. and Mrs. A. I. Root were married fifty-five years Sept. 29. Mr. Root will be 77 next December, and Mrs. Root 75. They have five children, five children-in-law, ten grandchildren, two grandchildren-in-law, and one great-grandchild. All are living, no deaths having occurred in the family in the 55 years of married life, and all are living near them.

The poem mentioned above was composed by Mrs. Borger, the wife of the boy Jacob whom I found almost forty years ago at a mission Sunday-school in Abbeyville, near here. Jacob is now foreman of the shipping department in our factory. Here is the poem.

Once, in the days to which your memories roam,
When children's voices rang within this home,
Out from its doors there rushed a happy throng;
Out from each heart there gushed a joyous song;
And thus the hours of every living day
Filled were with care for you and us with play.

(CHORUS.)

Just a song of gratitude for two lives well spent,
Filled with deeds of kindness, labor, and content.
May we ever emulate all your virtues praised,
And maintain the standard your noble lives ever raised.

Even to-day you're young in mind and heart;
What though the milestones give you much the start?
Life's heritage of faith and love and hope
Be ever yours adown the sunset slope;
And thus may we, when life's long shadows fall,
This glorious sunset of your lives recall.

(CHORUS.)

Just a song of gratitude, etc.
Sept. 20, 1916. NETTA FRASER BORGER.

I have given you the above story to illustrate two important morals. First, the wonderful outcome and far-reaching results as the years go by of one simple little prayer; and that clipping from the *Sunday School Times* hits the case exactly. Second, some trifling incidents in your life may, as the years go by, result in wonderful

transformations years hence. If you resist temptation, and choose the straight and narrow path, and take fast hold on God's precious promises scattered thru his sacred word, no man can imagine or contemplate (see text) what may be the result to *generations yet unborn*.

"WATER-WITCHING" AND THE "DIVINING-ROD."

For forty years or more I have been protesting and fighting the foolish notion that certain people can find water by means of a peach-tree or witch-hazel cross-sticks; and I expect that just now, when some of our subscribers read the words I am dictating, they will bristle up, and, may be, send me statements of what they have seen "with their own eyes." For some time back I have urged that our experiment stations, or, better still, the Department of Agriculture at Washington, should put out a bulletin giving statements from the best and wisest scientific men of the present day; and my wish has finally come to pass. In the *Cleveland Plain Dealer* for Oct. 10 I find an article of something like three columns on the subject. I will quote just the opening and closing paragraphs.

Arthur J. Ellis, a geologist of the survey, has now compiled a report giving the history of the divining-rod from the Middle Ages up to the present day, and exposing all the numerous absurdities in its record. This report is now in the pressroom of the government printing-office, and will soon be available for distribution. The divining-rod is likely to die hard; but the publication of the survey's report will undoubtedly mean the end of a good many professional water-witches in this country. According to the government scientists, nothing has ever been invented to detect the presence of water in the earth but common sense, the possession of which does not depend upon the divining-rod.

Let me repeat in closing what I have said before many times. Science is no respecter of persons. When X rays, radium, wireless telegraphy, etc., were discovered, they all worked with everybody, and especially with real scientific educated men and women. Now, please do not feel hurt, any of you, when I say that the peach-tree switch works with only a few individuals; and these individuals are not "college graduates" in *scientific matters*. In fact, an educated man acquainted with electricity, chemistry, geology, etc., would be ashamed to be seen carrying around a peach-tree sprout. One of the experts along this line when asked how he told the exact depth he would have to dig in order to find water said he did it by hanging a finger-ring on a horsehair loop; and by holding this in a tumbler of water the ring would begin to swing, and strike the sides of the tumbler just exactly the

number of feet he would have to dig, and then stop. I leave it to you, my readers, is there either sense or science in the above rigmarole? Well might the *Plain Dealer* say: "Nothing has ever been invented to detect the presence of water in the earth but common sense, the possession of which does not depend on the divining-rod."

GOATS AND GOATS' MILK—SEE P. 997, OCT. 15.

The following, from the editor of the *Angora Journal*, 306 Davis St., Portland, Ore., will answer a number of questions from many kind friends:

Replying to the latter portion your article in the October 15th issue on goats and their milk, the alkali in goats' milk does not form curds in the stomach as in the case of the acids in cows' milk, hence its superior digestibility. Prejudice against the odor said to be present in goat milk is imaginary; for if two glasses, one containing goats' milk, the other cows' milk, were tested by drinking from each, it would be impossible to tell the difference unless one could detect the richer, sweeter taste of the goat milk. There is no odor to the does, altho the bucks are objectionable in the breeding season. The Nubian breeders claim immunity from this drawback; but the does of all species are free, likewise their milk. Excellent cheese is made from goat milk, several goat dairymen in the West having marketed the product since the rise in price of European cheese. The familiar brands, such as Nonchafel and Roquefort, are made of goat milk. As to the uncouth appearance of which you speak, the pure-bred animals are deer-like in appearance, with alert intelligent expression, and, being harmless, make excellent pets for children. When thus petted they are improved in quality, and increased

flow of milk has been noted. The goat which you noted in Michigan, hitched to a cart, was probably a Mexican or native milk goat, of the straight-haired variety—a very sturdy and fecund animal, much used in crossing the strains of both milk goats and Angoras.

A. C. GAGE, Editor.

STILL MORE ABOUT GOATS.

Tell A. I. Root that I should like to pat him on the back and whisper in his ear "good doggie" for that milk-goat write up, October 15. I take three goat papers—all that are published, but have no goats as yet. It is well to study the subject and avoid loss when one gets the goats; also to have a book on goats. A. I. Root should secure some Saanen goats and have better and safer, also cheaper milk. Goats' milk, if used by mothers, would blot out 90 per cent of infant mortality, I think. Raise the "kid" on goats' milk and honey, and have the undertaker's bill reduced 90 per cent. This would help some on the "high cost of living." Anything that spreads disease broadcast over the land is dangerous. That's what cows' milk does. I refer to the "great white plague." Goats are almost free from this disease. If I could get A. I. Root to "rise and shine" once he would soon have some milk goats.

C. A. NEAL.

Jonesboro, Ind.

Many thanks, my good friend, for your kinds words; but if you will give us the names and addresses of the three goat-milk publications a lot of our readers will be greatly obliged to you. Ever so many are wanting to know where they can get a periodical on goats and goats' milk.

I should be pleased to have A. I. R. dine with us and be served with a leg of nice fat goat. I think he would view the goat in a different light.

Harrisville, Mo.

D. H. PLANK.

HIGH-PRESSURE GARDENING

TOMATO SEED FOR FLORIDA BY THE HUNDRED POUNDS,

The letter below properly belongs, perhaps, in the Kind Words department; but as it gives a glimpse of the tomato industry both in Ohio and Florida, I have thought best to put it here. In visiting the Florida tomato-fields and admiring the fruit I usually ask where they get their seed when so much depends on the variety in getting crops that go away into the thousands if not the millions. The reply is, almost every time, that they do not dare take a chance on any seed except that grown by the Livingstons. This illustrates the possibilities in any business that is handed down from father to sons, and possibly to the grandchildren. I might add that I anticipated what would happen with Irish potatoes in Florida when they are \$2.00 a bushel here in Ohio. Two different seedmen who make a business of furnishing

potatoes to plant in the fall were sold out, but I finally secured a peck, and Wesley tells me that my Florida potatoes are up and growing "just fine." Right here my stenographer suggests that Florida is not the *only* place in the country where potatoes "are up."

Dear Mr. Root:—On opening your letter this morning, right glad was I to see the personal signature of A. I. attached to it. I presumed you were in Florida some time ago, and had your winter garden under way by this time.

In this connection why would it not be a good "stunt" to put in a crop of extra-early Irish potatoes as early Ohio or Irish Cobblers, and push them along as rapidly as possible for the northern market? But may be you cannot grow good potatoes in your section of Florida.

Intensive gardening is being adopted and looked into as never before, and this increases the demand for reading-matter on the subject.

I am sending you a packet of Honor Bright tomato, and want you to note the solidity of this variety in its mid-state. The color is a waxy yellow, and reminds me of honeycomb or beeswax. We had an exceedingly productive crop of it on our

muck farm this fall, and it certainly is an extra-long keeper. I had them two and three weeks after picking in the mid-state, and they would ripen up in fine color and quality; and, being so solid, I think they would easily go to Seattle and back to Columbus again by express. The plant has an unhealthy look; but that is natural to it. The quality is fine when well ripened.

Livingston's Globe is our great leader in Florida. We have been sending hundreds and hundreds of pounds to that state the past three or four months.

Our tomato crop was short again this season; but the past two weeks gave us several thousand bushels from late-set plants that we hardly expected anything from when those first frosts came along. I regret I did not send you word to come and see our muck-grown crops, especially tomatoes when they were at their best. This dry summer was just about right for our muck or peat soil farm. Last year was too wet. I think I told you this land was where the wild pigeons used to roost by the millions before the land was reclaimed. It was swamp, and had timber on it.

Next summer you must surely come down (not State Fair week, tho), as I want more of your undivided time. I often recall the time we were at the fair together, and how easy it was for the few folks who had not met you to scrape up an acquaintance. It reminded me of my own experience in meeting people for the first time. In most cases they say, "Oh, yes! I used to buy my seed of your father."

I am enclosing a packet of "Honeydew" muskmelon seed. Be sure to try it, both in Florida and at Medina. We like it very much, and we believe it will leap into general favor at once, as did Golden Bantam corn.

ROBT. LIVINGSTON.

Columbus, O., Oct. 27.

NEW IRISH POTATOES IN FLORIDA.

Just after dictating the above I find the following in the *Jacksonville Times-Union*:

The first new crop of Irish potatoes to be shipped from here this season was sent out last week by Oldham & Roberts, to a commission firm in Tampa. The potatoes were grown by John McCreadie on his farm tract in section 25, just north of town. The Tampa firm gave Oldham & Roberts an order for two hamperers at their own price, and the price named by the local firm was \$2 per hamper, or 5 cents per pound. Other shipments of Mr. McCreadie's potatoes at these fancy prices were made to a Tampa retail grocer, to a Plant City hotel, and to a Dade City firm.

In the *Cleveland Plain Dealer* for Nov. 11 I notice that Irish potatoes have advanced

from \$1.80 to \$1.85 wholesale. Now is the time for Florida to furnish the great hungry North with new potatoes before anybody else gets on to the racket.

THE DASHEEN UP TO DATE.

With Irish potatoes up to \$2.00 a bushel here in Ohio, it would not be strange if there should be a big rush to plant potatoes, say during the month of November, over a great part of Florida. And then there is another thing that would not be strange: With potatoes away up, and with the wonderful yield that may be secured from dasheen (a tuber that is preferred by a good many even to Irish potatoes), there is a big opening for the dasheen business. Let me repeat: I have grown a heaping half-bushel of dasheen tubers from one hill down in Florida. I think they were allowed to grow and spread a little more than a year; and I expect to find, when I get down in Florida, dasheens growing spontaneously almost all over my clear-off acre of ground. The matter has just come up by seeing quite a lengthy article in the *Jacksonville Times-Union* on the dasheen. I give you only the closing part of it.

As a vegetable for market and home use the dasheen apparently offers bright possibilities of profit for the Southern farmer; but if Southern enterprise will establish plants for the manufacture of this vegetable into flours and breakfast foods that can be sold all over the country, the value of the dasheen to Florida and the South might become, within a very short time, almost unbelievable.

Perhaps I should explain that I write this Nov. 11, just before starting for Florida.

THAT OKLAWAHA CORNFIELD DOWN IN FLORIDA.

We clip the following from the *Florida Grower*:

Eighty-five thousand bushels of corn, valued at \$80,750, were produced on one thousand acres of Oklawaha River muck land near Leesburg.

POULTRY DEPARTMENT

BUTTERCUPS; HOGAN'S DISCOVERY.

Do you still think the Buttercup fowls the best breed? Can you give me any information on Hoganizing hens? I have had your literature more or less since 1877.

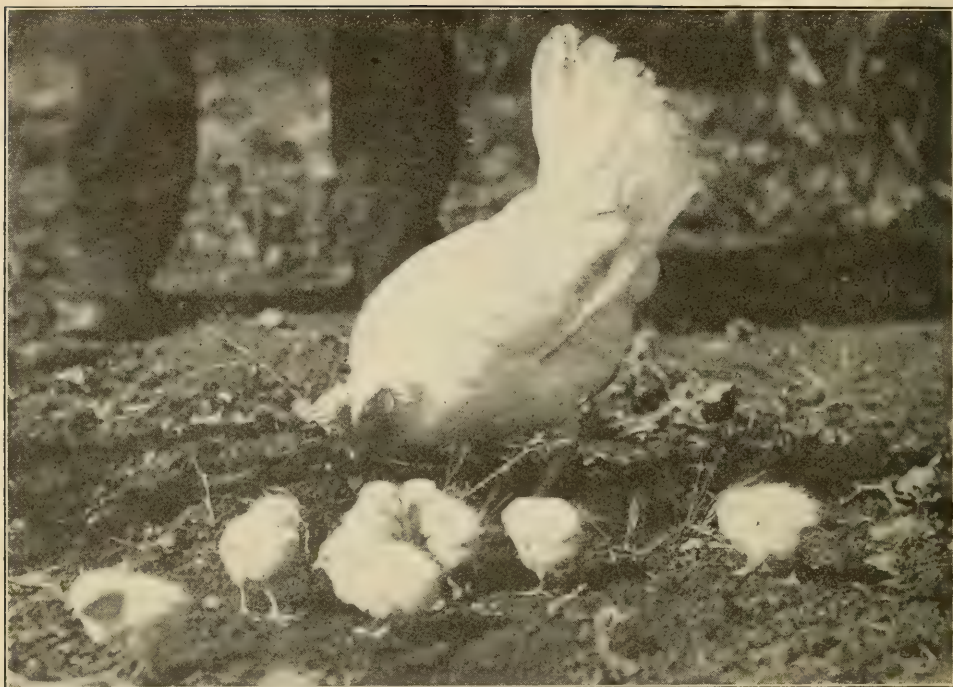
B. A. BEMIS.

Dinuba, Calif., Oct. 14.

I decided some time ago that Buttercups were no better layers than the Leghorns; and they certainly have never laid as well as the Lady Egglantine pullets I have been writing about in *GLEANINGS* of late.

In regard to Hoganizing, I believe our

different experiment stations have decided that, while it tells what hens are laying and what are not at the time the test is made, it does not by any means take the place of a trap-nest. Perhaps it may pay you to invest in their book; but the substance of the whole matter has been given thru our poultry journals again and again. I have had a copy of his discovery, that was sold for five or ten dollars some years ago, but I have never made any particular use



"THE YOUTHFUL MOTHER."

The above Eglantine pullet laid her first egg when she was four months and eight days old; and, surprising to relate, she continued laying an egg every day, or almost every day, until she had laid eighteen or twenty eggs, when she wanted to sit; and just for the novelty of the thing I gave her thirteen eggs and let her go ahead. Only nine eggs proved to be fertile; and from those she hatched seven chicks which you see above. The picture was taken when she was only a little over 5 ½ months old.

of it. When I wanted to sell off some of my old hens I could tell by the Hogan system which were laying at the time and which were not. It's simply measuring with your fingers the distance between the pelvic bones.

When a hen is laying right along regularly the points will be separated the width of two or three fingers. When she hasn't been laying for some time the points of the pelvic bones come almost up together.

TEMPERANCE

SALOONKEEPERS AND THE AUTOMOBILE INDUSTRY.

We clip the following from the *Plain Dealer*. It is dated Toledo, October 23.

Nine saloonkeepers who have enjoyed patronage from Overland Automobile Co. employees are under the ban of Ohio Anti-saloon League agents. A petition to oust the nine saloons from a district embracing the Overland factory was filed in common pleas court today. Overland officials are said to favor the ousting of the saloons.

I suppose every automobile factory, and I might almost say every other factory in the world, feels as the Overland people do about saloons; and yet, as I understand it, our United States of America legalizes or authorizes these fellows to go ahead and

say to the factory owners in substance, if not verbally, "Help yourself if you can."

GETTING DOWN TO BUSINESS.

From the *Methodist Board of Temperance* we clip the following:

The Virginia prohibition law which goes into effect November 1 forbids liquor advertising in all periodicals published within the state.

"GOD'S KINGDOM COMING."

Mr. A. I. Root:—I am very sure you will rejoice with me and many others because our state voted dry. Just think! a solid body of eight states all dry! Isn't it glorious? How little you and I thought when I began taking GLEANINGS many years ago that such a thing could come about in the lifetime of you and me! Our town voted dry two to one; the county gave a dry majority of 1700.

Falls City, Neb., Nov. 10.

G. W. SCHOCK.

DANGER MYERS TREE DISEASE IS PREVENTABLE BY SPRAYING MYERS WAY

**FOR
SPRAYING PAINTING
OR DISINFECTING**
To the man experienced
in fruit growing
Fall Spraying means
healthy trees that will

require but little more care the following
spring. Fall is the season to success-
fully fight scale and similar trees dis-
eases by spraying, and you want the
best equipment obtainable for this work.
MYERS will fill the bill, and whether
your orchards are extensive or include
but a few trees there is a **MYERS OUT-
FIT** that will just fit your needs.
Myers Spray Pumps are also adapted
for painting, disinfecting and similar
work.

The Myers Line includes Bucket, Barrel
and Power Pumps and Complete Outfits
with such improvements as our patented
easy operating Cog Gear Head on Hand
Pumps and Automatic Pressure Control-
ler on Power Pumps—You get these
and many other exclusive features
when you purchase a **MYERS**.

Write today for large Catalog—
It's free and a postal will
bring it to your door.

F. E. MYERS & BRO.
NO. 351 ORANGE ST.
ASHLAND - OHIO.

The BEST LIGHT

Positively the cheapest and strongest light on earth.
Used in every country on the globe. It does not
burn its own gas. Casts no shadows. It is clean and
odorless. Absolutely safe. Over 200 styles in these
2000 Candle Power. Fully guaranteed. Write for
catalog.

AGENTS WANTED EVERYWHERE
THE BEST LIGHT CO.
306 E 5th St. Canton, O.

3 Garden Tools in 1

The **BARKER** Weeder, Mulcher and
Cultivator

The only garden tool that successfully, in one op-
eration, kills weeds, and forms a complete soil
mulch to hold moisture. "Best Weed Killer
Ever Used." A boy with a Barker beats
ten men with hoes. Has shovels for
deeper cultivation. Self ad-
justing. Costs little.

Write for illustrated folder
and special Factory-to-User
offer.

Barker Mfg. Co.
Box 117 David City, Nebr.

SEE
THE
KNIVES

XMAS? See the December Farm Journal



Getting Ready for Christmas?

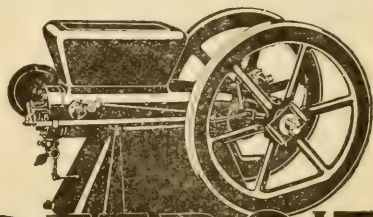
Worrying over what to give, how to give,
to whom to give? Read Jacob Biggle's ar-
ticle in the December **FARM JOURNAL**.
His cheery philosophy on the giving
question will give you some good point-
ers; make you smile, too.

Judge Biggle knows farm-folks clear
through. Your family will look eagerly
for his article every month in the year.
Make this chock-full-of-good-things magazine
your Christmas present to yourself, the family,
your friends. \$1 for 5 years. Refund any time
you say. Postal brings sample copy of the Decem-
ber issue and Poor Richard's Almanac for 1917,
our Christmas gift to you.

The Farm Journal

117 Washington Square, Philadelphia

Gasoline and Kerosene



DETROIT
THE FARM ENGINE THAT WORKS

Built and guaranteed by the largest producers of
farm engines—simple, durable, powerful—four cycle,
suction feed, make and break ignition—every part
interchangeable—fully tested. Guaranteed to
Develop Rated H. P.

SAVES FUEL, TIME, LABOR, MONEY
Lowest Price, Greatest Value

Write for big illustrated Engine Book today
Full Line Detroit Engines 2 horse power up
DETROIT ENGINE WORKS 373 Edvue Ave., DETROIT, MICH.
Wadsworth Mfg. Co., Successors

Farms in VIRGINIA OR NORTH CAROLINA

Will provide you with a good livelihood the year 'round. Long growing season makes inten-
sive farming profitable. Fruit, vegetables, poultry and garden truck thrive lustily. Close to the
great markets of North and West. Good shipping facilities and low freight rates. Mild congenial
climate, excellent roads, schools, churches and neighbors. Rich, fertile, well-watered farm lands in
this "Land of Plenty" at \$15 per acre and up. Write for information, booklets, maps and other in-
teresting literature today. Mailed free upon request.

F. H. LaBaume, Agricultural Agent, N. & W. Ry.,

246 N. & W. Bldg., Roanoke, Va.



WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery---a month or more in some instances. Goods ordered now carry 2 per cent discount during December. Send in your order just as soon you find out what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
- Five-gallon Cans
- Five and Ten Pound Pails

Two per cent Discount on Goods for Next Year's Use

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies—full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County



4 MONTHS FOR 10¢
Trial Subscription To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Clover honey of fine quality in new 60-lb. cans. THOS. PHILLIPS, Johnsonville, N. Y.

Light-amber honey, two 60-lb. tins to the case, at 7 cts. Sample, 10 cts. H. C. LEE, Brooksville, Ky.

FOR SALE.—White-amber honey in 60-pound cans, 6½ cts. per pound.

W. B. WALLIN, Brooksville, Ky.

FOR SALE.—A limited quantity of choice stock buckwheat and pure clover honey in 60-lb. cans and 5-lb. pails. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Pure honey and beeswax—Porto Rico, Cuban, etc.

D. STEENGRABE, 81 New St., New York.

No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case. H. G. QUIN, Bellevue, O.

WHITE-CLOVER HONEY.—Ripe, extracted from new combs; \$6.00 for 60-lb. can. Sample 10 cts. Prices on large lots.

A. S. TEDMAN, Weston, Mich.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.

ELMER HUTCHINSON,
Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold.

D. STEENGRABE, 81 New St., New York.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—Extracted honey in any lots. Send sample and prices. ED. SWENSON, Spring Valley, Minn.

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York.

WANTED.—Extracted alfalfa honey and wax. Send sample of honey.

A. E. BURDICK, Sunnyside, Wash.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares.

SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Several thousand pounds of clover honey, comb and extracted. Send price and sample. A. W. YATES, 3 Chapman St., Hartford, Conn.

WANTED.—Extracted clover honey in any quantity; send sample and lowest cash price.

E. B. ROSA, Monroe, Wis.

WANTED.—White clover and light-amber extracted honey. Will buy in lots of 1000 lbs. to a carload. Send sample and lowest price.

M. E. EGGERS, Eau Claire, Wis.

FOR SALE

Get our new Rubber Stamp and Label Catalog.

ACME PRINTING CO., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for sample of latest Honey Labels. LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

Pretty green mistletoe for holidays, 15 cts. per lb., f. o. b. Brady. M. C. STEARNS, Brady, Texas.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

WANTED. — Extracted honey, carload or less; send sample.

HOFFMAN & HAUCK, Richmond Hill, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

Patents secured or all fees returned. Fortunes made by clients. Patents advertised free. Send data for actual free search. Books free.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

Fine White and Buff Wyandotte cockerels; prices low; must have room. JOSEPH COX, Valencia, Pa.

S. C. Brown Leghorns, good ones. Special cockerel sale. Circular.

H. M. MOYER, Boyertown, Pa. Rt. 3.

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry, for pleasure or profit; four months for 10 cents. POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS. Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

WANTS AND EXCHANGES

DADANT FOUNDATION MILL.—Will trade for good shot gun. ALBERT PRICE, Nokomis, Ill.

Buffalo robe to trade for White extracted honey. ELIAS FOX, Union Center, Wis.

WANTED.—Honey-extractor, Novice or Cowan. OTTO BENDER, 2813 Osceola St., St. Louis, Mo.

WANTED.—40 to 50 colonies of bees in ten-frame hives. CHAS. H. FOSS, Oswego, Ill.

WANTED.—For spring delivery. 600 colonies of pure Italian bees. Write LEWIS H. FURGASON, Box 103, Windham, N. Y.

WANTED.—600 standard ten-frame shallow extracting-supers in good condition. State price and full particulars in first letter.

COWAN, CARR & LAUDERVALE, Geneseo, N. Y.

WANTED.—To sell an interest in the bee business to some honest ambitious young man who wishes to go into the business in a large way in as good a locality as there is in New York State. Do not write unless you mean business.

THE M. C. SILSBEE CO., Rt. 3, Cohocton, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—My home in Redlands, Cal. Will include bees if desired.

P. C. CHADWICK, Redlands, Cal.

Business Opportunity. \$5000 ideal bee, poultry, printing, and mail-order location for \$1500. A genius can add \$1000 and get \$8000 value; 37 descriptive pages free.

W. H. GARDNER, Roxabel, Ohio.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

THE SOUTH FOR FARM PROFITS. Why not look for a farm home in the South? Farm lands, for time and money invested, pay larger profits than elsewhere. Two to four crops a year, good yields; best prices for products. Good locations in healthiest, most pleasant districts, \$15 an acre up. Write for our literature and the special information you wish.

M. V. RICHARDS, Ind. and Agr. Comm'r, Room 27, Southern Railway, Washington, D. C.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies.

J. H. M. COOK, 84 Cortlandt St., New York.

My choice northern-bred Italian queens are hardy, and will please you. Orders booked now for spring delivery. Free circular. L. L. BARBER, Lowville, N.Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—80 colonies of fine bees at Tularosa, N. M.; good location; good place to live, because owner deceased. Address N. B. DEWITT, care of E. P. & S. W. Ry., Douglas, Ariz.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

FOR SALE.—20 hives of Italian bees somewhat mixed with black, but good color, in good condition; modern 8-frame hives. Mrs. H. A. MOODY, 807 N. Wood Ave., Florence, Ala.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed.

M. BATES, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE AND HONEY CO., Canton, Ohio.

SITUATIONS WANTED

WANTED.—Position in an apiary in the South, Southwest, or West. FRED E. OSBORNE, Ahearn, Florida.

WANTED.—Situation by experienced beekeeper in Washington, eastern Oregon, or southern Idaho.

A. WENDTE, 211 N. 9th St., N. Yakima, Wash.

WANTED.—Situation by a young man of clean habits; have had five years' experience in the bee business, and wish to manage outyards or run bees on shares. Address APIARIST, Box 115, Clint, Tex. 71538

Convention Notices

The annual meeting of the New York State Association of Beekeepers' Societies will be held in the Courthouse in Canandaigua, N. Y., Dec. 5 and 6.

F. GREINER, Sec.

PROGRAM OF ANNUAL MEETING OF WISCONSIN STATE BEEKEEPERS' ASSOCIATION, THURSDAY AND FRIDAY, DECEMBER 7 AND 8, 1916.
AT ASSEMBLY CHAMBER, STATE CAPITOL, MADISON.

Thursday Morning: 9 A. M.—Social Hour. The Secretary will receive dues at this time. Call to Order. Reading Minutes of the Last Convention. Reading Secretary's Report. Reading Treasurer's Report. Action on Reports, Appointment of Committees, and Other Business. Report of Inspector of Apiaries. Questions, Discussions, and Other Business. Adjournment to 2 P. M. Thursday Afternoon: 2 P. M.—President's Address.—N. E. France, State Inspector. Bee Work at the University.—C. W. Aeppler, "In Charge of Queen-rearing." Instruction in Apiculture at the University, By Mr. Moe.—"One of the Students." Discussion. Extension Work in Beekeeping.—Dr. E. F. Phillips, In Charge of Bee Culture Investigations, Washington, D. C. Establishing a Trade Name for Honey.—E. R. Root, Editor "Gleanings in Bee Culture," Medina, Ohio. Election of Officers for the Ensuing Year. Discussions and Questions. Adjournment to 9 A. M. Friday Morning. Friday Morning: 9 A. M.—Marketing Honey.—Edw. Hassinger, Jr., Greenville, Wis. Better Beekeeping.—Mrs. Wm. Haberman, vice-president, Lodi, Wis. Beekeeping in

Northern Wisconsin.—G. C. Chase, Rhineland, Wis. State Fair.—A. L. Kleeber, Reedsburg, Wis. Co-operative Honey Advertising.—G. W. Williams, Redkey, Ind., Secretary United Honey Producers. Discussions. Questions and papers not received in time, of which we are looking for several. Five-minute Talks and Discussions.—Conducted by A. C. Allen. Beekeepers are urged to bring anything new they have learned or have done during the year, of special interest to themselves, before the meeting for mutual information and discussion. Closing Business. Adjournment. The order of the program, and presenting of new topics, will be changed if necessary, at the discretion of the President, Mr. N. E. France.

TRADE NOTES

FURTHER ADVANCES IN PRICES.

The cost to us of some lines of metal and paper goods continues to advance, making it necessary to announce some further advances in price before the issue of our catalog for 1917 now in preparation.

Van Deusen hive-clamps are advanced to 40 cts. for 10 pairs with screws; 35 cts. without screws.

Tinned wire is marked up as follows: $\frac{3}{4}$ -oz. spools, 5 cts. each; $\frac{1}{4}$ -lb. spools, 15 cts. each; $\frac{1}{2}$ -lb. spools, 20 cts. each; 1-lb. spools, 35 cts. each; 5-lb. coil, \$1.50 each.

A further advance of 50 cts. per 1000 is made on safety and folding cartons, plain and printed. Glass for shipping-cases as well as for hotbed sash is advanced to \$4.00 per box. Bee gloves are advanced to 60 cts. a pair. West cell-protectors, 5 cts. each; 45 cts. for 10; \$4.00 per 100; West spiral cages, 10 cts. each; 80 cts. for 10; \$7.00 per 100.

Several of the glass jars will be omitted from the new catalog, also scales which do not meet the requirements in some states.

We have advice from the publishers that Dadant's Revision of Langstroth on the Honeybee is advanced next year to \$1.50 each.

Owing to greatly increased cost of importing we are obliged to mark up the French edition of the A B C to \$2.50.

We have made no advance as yet on hives and other wood goods excepting a small advance on sections in quantities and on shipping-cases, because of the great advance in paper pads.

We find on getting new prices on the paper trimmings for cases that the \$1.00 per 100 added does not cover the increased cost. Lumber has already advanced over prices prevailing the past season; and if we did not already have a good supply in pile we should be compelled to advance prices on wood goods. If the present tendency continues, as seems most likely, higher prices on supplies are bound to come during the year ahead. The wise forehanded beekeeper will anticipate his requirements and order before these advances occur. He can also get these supplies nailed and ready for use before the season arrives when they will be needed.

TIN CANS AND PAILS FOR HONEY.

We have been trying for weeks to get new prices on tin cans and pails for next year, but have been unable so far to get quotations good beyond Jan. 1, 1917. Every indication points to still higher prices beyond that date. Some are protected with contracts good till then. Quotations received good for immediate acceptance only are forty to sixty per cent higher than we paid a year ago; and new prices, still higher than those last quoted, will have to be made. Orders will be accepted only subject to stock on hand at present prices pending new prices to be announced as soon as we receive more definite information.

SECOND-HAND 60-LB. CANS.

We are emptying honey-cans in our honey-packing departments at the rate of nearly a hundred cases a day. We have recently sold three cars of these cans to relieve the pressure on our storage facilities. With the much higher prices already in effect and soon to be still more noticeable it would seem to be economy on the part of producers to lay

in a stock of good second-hand cans, while available for next season's crop, even if not needed at present. While our stock at present is small we are accumulating more so rapidly that we can take care of ordinary requirements. For small lots we make no change in prices—namely, \$4.00 for 10 cases, \$8.50 for 25 cases, or \$30.00 per 100 cases of two 60-lb. cans in good condition to receive honey again. If any one would be interested in carload lots for later shipment we should be pleased to hear from him on such a proposition.

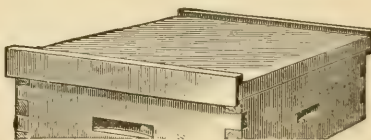
ST. PAUL BRANCH IN NEW LOCATION.

Our St. Paul branch is moving to a new location in the downtown district at 290 East Sixth Street, where they will occupy three floors and basement in a brick block in the wholesale district. This location is only five minutes' walk from the Union Station or from Fifth and Robert Streets, the business center of the city. It is also located near most of the freight depots, and will permit of quick service. With increased storage room and more convenient quarters our manager expects to give better service than in the past.

CHANGE AT SAN ANTONIO, TEXAS.

The Fraser & Harrison Co. is the new name of the company which succeeds the Toepperwain & Mayfield Co. at San Antonio, Texas. The new men took over the business last July, and have only recently changed the name. Mr. W. G. Fraser, the active manager of the new company, is the son of a retired banker, one of the early residents of San Antonio—a young man of pleasing address, who is making many friends in his new connection. We believe the company has greatly assisted beekeepers in disposing of their honey this season, and merits the support of the beekeepers of southwest Texas. They continue to operate the Weed foundation machinery.

FLAT COVERS CLEATED.



Some time ago we had made up for us a quantity of the old-style flat-board hive-covers cleated on the end as shown above. These are made of Mexican white pine; and instead of being of one wide board they are made up of two or three boards, edge dovetailed together in such a way that they cannot come apart, and are more inclined to lie flat than if made of one wide board. We still have in stock some two or three hundred each of 8 and 10 frame size which we offer, to close out, at \$3.00 for 10 8-frame; \$3.30 for 10 10-frame. For 100 or more the price will be 27 and 30 cts. respectively. They are offered subject to stock on hand at these prices, and should not last long.

FIRE AT THE HOME OF THE HONEY-BEES.

A few minutes after 8 P. M., central time, Nov. 27, a fire of very evident incendiary origin was started in the central section of our lumber yard, and immediately gained such headway that it was with great difficulty confined to that section, which was entirely consumed. This section comprised a metal roof on poles 40 x 180 feet, with twenty-four piles of pine, basswood, and cypress lumber, and two cars on track alongside in process of being unloaded. There was a little more than half a million feet of lumber within the shelter structure, and two railroad cars entirely consumed. Approximate loss, \$20,000, fully insured. The fire ladders did valiant service in keeping the fire from spreading, assisted by a fifty-foot clear space at each end of the burning section.

SUNDAY SCHOOL TIMES.

This is, without doubt, one of the most helpful and interesting family religious weekly papers published. It is particularly helpful in Sunday-school matters. No change in price is announced for the new year. The regular price is \$1.50 a year. In clubs of five

or more, \$1.00. We shall be sending in our Medina club this month; and if any of our readers not having the opportunity of joining a club in their own Sunday-school or town want to join our club they may do so on the following conditions: The subscription should be sent during the month of December—the earlier in the month the better. Send one dollar along with your renewal to GLEANINGS at one dollar, or two dollars for both. If you send after December, your subscription will be for only part of a year, ending with our club in December, or you will have to pay \$1.50, the regular price for a full year.

HOTBED SASH.

The season is here again when hotbed sash are needed for growing plants under glass during the cold winter months. We are offering our choice quality cypress sash shipped K. D. at the same price as formerly; but the price of glass is higher. The sash as regularly furnished are 3 ft. 4 in. wide, 6 ft. long, for four rows of 8-in. glass slid into grooves in the bars with ends butted together. We also furnish them with bars rabbeted, when so specified, at the same price:

One sash, K. D., \$1.00.

Five sash, K. D., \$4.75.

Ten sash, K. D., \$9.00.

Glass 8 x 10 for same, \$4.00 per box of 90 lights; five boxes at \$3.80.

We are prepared to make special sash to order, including those with double tier of glass. Prices quoted on application, naming style and quantity required.

SECOND-HAND FOUNDATION-MILLS.

We have for sale the following list of second-hand foundation machines which will serve a good purpose for those who want to make up their own foundation. We can submit a sample from any mill in the list to anyone interested, on application.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0230, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$13.00.

No. 0234, 2½ x 6 extra thin-super mill in very good condition. Price \$12.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.

No. 0247, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

THE A. I. ROOT COMPANY, Medina, Ohio.

Special Notices by A. I. Root

GOOD BOOKS AT A BARGAIN.

In our issue for June 15 we gave a list of good books that we offered at very low prices because they were, the most of them, old. The little book *Poultry for Pleasure and Poultry for Profit* that we offered there for 10 cts. you may have for 5. There are only six copies left.

The book *Silk and the Silkworm* that we offered there for 10 cts. you may also have, postpaid, for 5 cts.

Merrybanks and His Neighbor, which we offered for 10 cts., you may have for 5 cts. As the postage will be pretty near 5 cts. there will be no profit; but I think the book may do good. The same with the *Story of Art Smith*, the boy who made a flying-machine. We offered that also for 10 cts. You may now have it (a 25-cent book) for 5, postpaid.

Prof. Cook's book, *Injurious Insects of Michigan*, which we offered for only a nickel, postpaid, you can have for that now, but we cannot very well make any reduction.

We have four copies left of the book *The New Agriculture*; or, the *Waters Led Captive*. It is a \$2.00 book, but as the four copies were damaged by getting wet (but not so much but that it can be read easily), we offer them at 25 cts. each.

T. B. TERRY'S WRITINGS.

Since the death of Mr. Terry, as a matter of course his books (particularly his potato book) are being read with renewed interest. This book passed thru three editions of 10,000 each, and was revised and enlarged a few years ago. The price is 50 cts. in paper, and 75 in cloth—postage extra. We will for the present mail them at the above price, postpaid. See our Book Notices for June 1 for a description. The strawberry book, written not long after the potato book, has also had a great sale, and went thru two editions. We offer it now bound in cloth (former price 75 cts.) for 60 cts.; paper, 40 cts., postpaid.

Not long after the potato book appeared there was so much inquiry in regard to the best methods of growing clover to turn under for both potatoes and strawberries that Terry put out a little book entitled *The Winter Care of Horses and Cattle*. This has heretofore sold at 40 cts., postage extra; but we have so large a stock on hand that we offer it now for only 10 cts.

T. B. Terry's new book, "How to Keep Well and Live Long." Altho the above is a dollar book, by buying them by the hundred we are enabled to make the price 90 cents; and my opinion of it now is just about the same as it was when I wrote the following and placed it in our book list: "The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. That is pretty strong language, I admit; but since Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food, in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty for getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and happier man or woman for having read it." We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

MISCELLANEOUS HANDBOOKS BY OTHER AUTHORS.

The *A B C of Carp Culture*. While not very much is now being said about carp culture, the directions in this book for making ponds and for other fish, or for other purposes, should be quite valuable. The book sold for 30 cts., postpaid; but as we have quite a stock on hand we now offer it for 15 cts. postpaid.

Asparagus Culture, heretofore 40 cts., we now offer for 25 cts. postpaid.

Alfalfa Culture, same price as above.

Barn Plans and Outbuildings, a very valuable book that sold for \$1.25 which we now offer for 75 cts.

Garden and Farm Topics, by Peter Henderson—a \$1.25 book which we now offer for 50 cts.

Gardening for Pleasure, by Peter Henderson—a \$1.25 book which we now offer for 75 cts.

Gardening for Profit, also by Henderson—a \$1.25 book which we now offer for 75 cts. until sold.

Gardening for Young and Old, by Joseph Harris—a \$1.25 book which we offer for 75 cts., postpaid.

Gregory on Squashes—a 25-cent book, now 15 cts.

Maple Sugar and the Sugar-bush, by Prof. A. J. Cook. The price of this was originally 30 cts., now 25 cts., postpaid.

Manures and How to Make Use of Them—a 35-cent book, now 25 cts.

Nut Culture—a \$1.25 book, now offered for 75 cts.

Small-fruit Culture, by Andrew Fuller—a \$1.25 book which we now offer at 75 cts. postpaid.

Experiments in Farming, by Waldo F. Brown, including directions for making cement floors, etc.—a 10-cent book now offered for only 5 cts.

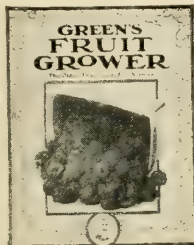
A GREAT OFFER

Gleanings in Bee Culture . . .) ALL THREE
Green's Fruit Grower) \$1.00
American Poultry Advocate) ONE YEAR

Just as the bee, fruit and poultry business hook up well together, so do these three journals—all leaders in their several fields. Realizing that a large number of our readers would like practical information along these lines, we have arranged with the publishers of a great leader among fruit journals and among poultry journals of the country to club with Gleanings in Bee Culture, at a special low price of \$1.00 for all three. (Canadian postage on the club, 75c extra.)

Green's Fruit Grower

Rochester, New York



With Charles A. Green as Editor, is the oldest fruit journal in America, published at Rochester, the very birthplace of the fruit industry in the United States. It tells in season, all about spraying, how to beautify the home grounds, about ornamental shrubs, vines and trees, small fruits, home gardens, and successful orchards. In fact, it covers all phases of fruit growing, from planting the trees to marketing the fruit. It has a special department where subscribers' questions are answered, and a department devoted to the home and its interests.

American Poultry Advocate

Syracuse, New York



This great poultry authority, established 1892, is devoted to interests of both fanciers and practical poultrymen. It is authoritative and helpful in all branches of poultry work, from hatching and rearing the chicks to maturing fowls for show room and market. Tells how to get eggs at the least cost, how to feed to get best results. No detail left out. It is the second oldest poultry publication in the United States and stands second to none in its value to poultry raisers. It is helpful to the beginner as well as the expert. The newest and best in poultry literature is found between its covers each month. This paper will help you to success in the management of your poultry, and by following the valuable information given you should be thrifty and prosperous.

The Three for Only \$1.00

This combination can be secured only by writing direct to the publishers, and while the offer may be open to our readers for a year it may have to be withdrawn earlier on account of general increased cost of publication. Secure it now.

Gleanings in Bee Culture, Medina, Ohio

The A. I. Root Co., Publishers

"No Christmas Present like it"

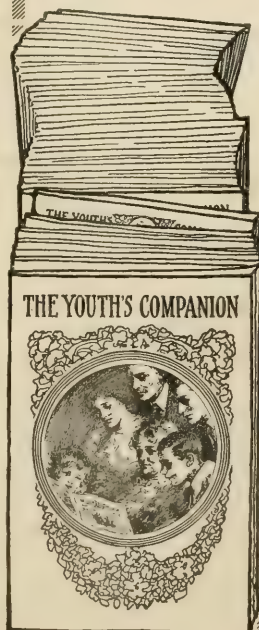
52 Issues a Year
52 reminders of real thought
put into Christmas giving—52
Issues of stories, and a lot of them

Already scheduled for 1917—12 Great Serials or Groups and 250 Short Stories, a thousand Articles and Suggestions, a thousand Funnyisms. Special Pages for the Family—Boys—Girls—Children. Sports, Games, Receipts, Doctor's Counsel, new Pictorial Section, etc.



The Youth's Companion

America's Best-Loved Family Weekly. Every age enjoys it—the *brightest, cleanest, best*—and the most for your money—\$2.00 a year—and then to make it irresistible note this great **BEST TWO Offer**, including McCall's Magazine, to which millions of women look for styles, etc.



1. THE YOUTH'S COMPANION—52 issues of 1917.
2. All remaining Nov. and Dec. issues of The Companion FREE.
3. The Companion Home Calendar for 1917. ED 40
4. McCALL'S MAGAZINE—12 Monthly Fashion Numbers 1917.
5. One 15-cent McCall Dress Pattern—your choice for 2c. stamp.

This "Best Two" Offer is made to NEW Companion subscribers only.

Everything that is good to read. **\$2.10**
All for

Better send TO-DAY—and make sure.

THE YOUTH'S COMPANION
BOSTON, MASS.



Cleanings in Bee Culture



WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery---a month or more in some instances. Goods ordered now carry 2 per cent discount during December. Send in your order just as soon you find out what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Seasonable Goods

- Tenement Winter Cases
 - Buckeye Bee Hives
 - Shipping Cases
 - Five-gallon Cans
 - Five and Ten Pound Pails
-

Two per cent Discount on Goods for Next Year's Use

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies--full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

No. 1...	holding 24 sections, $4\frac{1}{4} \times 1\frac{3}{4}$, showing 4	10, \$2.00; 100, \$18.00
No. 3...	holding 12 sections, $4\frac{1}{4} \times 1\frac{3}{4}$, showing 3	10, \$2.00; 100, \$18.00
No. 1½...	holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing 4	10, \$1.90; 100, \$17.00
No. 6...	holding 24 sections, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$, showing 4	10, \$1.80; 100, \$16.00
No. 8...	holding 24 sections, $4 \times 5 \times 1\frac{3}{4}$, showing 4	10, \$1.80; 100, \$16.00

Shipping-cases with Glass.

		with 3-inch glass	with 2-inch glass
No. 11...	Same as No. 1... Nailed, 35c; in flat, 1,	25c; 10, \$2.30; 100, \$21.00	100, \$20.00
No. 13...	Same as No. 3... Nailed, 22c; in flat, 1,	15c; 10, \$1.40; 100, \$12.50	100, \$12.00
No. 11½...	Same as No. 1½... Nailed, 35c; in flat, 1,	25c; 10, \$2.20; 100, \$20.00	100, \$19.00
No. 16...	Same as No. 6... Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	
No. 18...	Same as No. 8... Nailed, 30c; in flat, 1,	22c; 10, \$2.10; 100, \$19.00	

Red Catalog Postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the side not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18½ s. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, CO.,
FEBRUARY, 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representative of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds to the gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A," should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

EXTRACTED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.
A few cars of California Water White Sage.
A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HONEY MARKETS

CHICAGO.—Comb honey drags; otherwise there is not much change in values other than a stronger tone in extracted of all grades.

Chicago, Ill., Dec. 11. R. A. Burnett & Co.

DETROIT.—Extracted honey is scarce; selling from store, 9 to 10; comb has a good demand at 15 to 16; extra fancy 16 to 17.

Detroit, Mich., Dec. 7. F. P. Reynolds Co.

CLEVELAND.—Supply and demand are both moderate; very little call for any except fancy and No. 1 grades. We quote fancy, per case, \$3.75 to \$4.00; No. 1, \$3.50 to \$3.65; No. 2, \$3.25 to \$3.40.

Cleveland, O., Dec. 6. C. Chandler's Sons.

PITTSBURG.—No change in price or condition to report. We quote extra fancy comb, \$3.75 to \$4.00; No. 1, \$3.50 to \$3.75; fancy buckwheat, \$3.25 to \$3.50; No. 1, buckwheat, \$3.00. W. E. Osborn Co.

Pittsburg, Pa., Dec. 8.

TORONTO.—Prices are unchanged since last issue. Comb honey which is now on the market sells as follows: No. 1, per case, \$2.40 per doz.; No. 2, \$2.25.

Toronto, Ont., Dec. 6. Eby-Blain Limited.

HAMILTON.—Honey is going slowly this week. Only small lots are moving. We quote extra fancy, per case, \$2.50; No. 1, \$2.25; No. 2, \$1.60. White extracted honey, per lb., brings 12 in 60-lb. tins; light amber, in cans, 10. F. W. Fearman Co. Ltd.

Hamilton, Ont., Dec. 7. MacNab Street Branch.

BUFFALO.—Receipts of honey are more liberal with trade very quiet and stock accumulating in receiver's hands. We quote extra fancy, per case, 15 to 15½; fancy, 14½; No. 1, 14 to 14½; No. 2, 11 to 13. White extracted honey brings 8 to 8½; light amber, in cans, 7½; amber, in cans, 6 to 7. Clean average yellow beeswax brings 32 to 33.

Buffalo, N. Y., Dec. 8. Gleason & Lansing.

BOSTON.—The sale of honey is somewhat neglected owing to Thanksgiving trade, holiday goods taking the lead. A healthy demand is present most of the time. We quote extra fancy comb honey, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.50. White extracted honey brings 9½ to 12, according to quality and size of package.

Boston, Mass., Dec. 7. Blake Lee Co.

ST. LOUIS.—Southern extracted and strained—bright amber in barrels at 5½ and 6c per pound, in cans at 6 and 6½; dark ½ and 1c less. Comb, in cases—amber at 10 and 12c; dark and inferior at 9 and 11c per pound; broken and leaking at 7 and 8c; fancy clover at 14 and 17c. Comb, in cases (24 cartons)—fancy clover at \$2.75 and \$3.00, amber at \$2.50 and \$2.75, Southern at \$2; inferior less. —St. Louis Globe Democrat.

KANSAS CITY.—The demand for honey is very limited, and the high freight rates have curtailed the country consumption. Less honey is selling now than we ever knew at this time of the year. We quote fancy, per case, \$2.80 to \$2.90; No. 1, \$2.80 to \$2.90; No. 2, \$2.60 to \$2.65. Light amber extracted honey in cans brings 8; amber, 7½. Clean average yellow beeswax brings per lb. 25.

C. C. Clemons Produce Co.

Kansas City, Mo., Dec. 7.

SAN FRANCISCO.—Light demand on comb honey; trade generally well supplied; tendency is downward rather than firm market. Extracted of light grades in good request, and a free movement for all grades of extracted actually exists. White extracted is closely cleaned up, and wanted. Dealers find low grades in short supply. We quote extra fancy comb honey, per case, \$3.25 to \$3.50; fancy, \$3.00 to \$3.10; No. 1, \$2.40 to \$2.65; No. 2, \$1.50 to \$2.00. White extracted honey per lb. is nominal; extra light amber, in cans, 7½ to 8; light amber, in cans, 7 to 7½; amber, in cans, 5 to 6½. Clean average yellow beeswax brings 26 to 29.

San Francisco, Cal., Nov. 23. Leutzinger & Lane.

PHILADELPHIA.—Comb honey is moving slowly. There is a fair inquiry for extracted honey, all grades. There is a somewhat better demand for country beeswax at prices quoted. Extra fancy comb, per case, 16; fancy, 15 to 16; No. 1, 13 to 14; No. 2, 11 to 12; white extracted honey brings 8 to 9; light amber, in cans, 7 to 7½; amber, in cans, 6 to 7. Clean average yellow beeswax brings 29 to 31.

Philadelphia, Pa., Dec. 7. Chas. Munder.

ALBANY.—Comb honey is moving slowly, but working off better than it would if weather were colder as usual this month. There is an increased demand for extracted, especially white clover or basswood. We quote fancy, per case, 15; No. 1, 14; No. 2, 11 to 13. White extracted honey brings 8 to 8½; light amber, in cans, 7½; amber buckwheat, in cans, 7. Clean average yellow beeswax, per lb. brings 30 to 32.

H. R. Wright.

Albany, N. Y., Dec. 8.

LOS ANGELES.—These prices are what the retailer pays our wholesale customers, not what we are buying at. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. White extracted honey brings 8½; light amber, in cans, 8; amber, 7; in barrels, not used. Clean average yellow beeswax brings 35.

Los Angeles, Cal., Dec. 6. Geo. L. Emerson.

DENVER.—We quote fancy white comb honey, per case of 24 sections, \$2.84; No. 1 white comb honey, per case, \$2.70; No. 2, per case, \$2.57; white extracted honey brings 8½ to 9; light-amber extracted, 8 to 8½. The above are our jobbing quotations. We are in the market for beeswax, and are paying 28 cts. in cash and 30 in trade for clean yellow stock delivered here.

The Colorado Honey-Producers' Ass'n.

Denver, Col., Dec. 1.

ST. LOUIS.—We have no great demand for comb honey, as weather so far is too mild. The supply here is fully ample for the demand. Extracted honey is moving much better, but prices remain about same as our last quotation. We quote extra fancy, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.50 to \$2.75. Light amber extracted honey in cans brings 9 to 10; amber, 60-lb. cans, 7½ to 8; in barrels, 7. Clean average yellow beeswax brings 31½.

R. Hartmann Produce Co.

St. Louis, Mo., Dec. 7.

TEXAS.—The honey is just about all in, also out. The last honey was disposed of as fast as could be gotten ready for the market by beekeepers of this section, also at one and two cents better than the prices for earlier honey, notwithstanding the earlier honey was of better grade. We quote No. 1 comb honey, per case, 10 to 11 cts. in two 60-pound cans; No. 2, amber bulk in two 60-lb. cans, 7 to 9. Light-amber extracted honey, in cans, 8 to 9; amber, in cans, 6 to 8. Clean average yellow beeswax brings 26 to 28.

J. A. Simmons.

Sabinal, Texas, Dec. 8.

LIVERPOOL.—Steady prices in good demand; 1800 packages sold as follows: Jamaica, palish, \$10.56 per cwt.; Jamaica, dark to amber, \$8.16 to \$9.84; St. Lucia, dark, \$8.16 to \$9.00; Haiti, dark, \$7.92 to \$9.72; Cuban, dark to pale, \$7.44 to \$12.60; San Domingo, dark to amber, \$8.52 to \$9.60; Honolulu, \$9.00 to \$9.84; Chilian, pile X, \$10.80 to \$11.52; Chilian, pile 1, \$9.84 to \$10.32; to \$8.52. Firm Jamaica beeswax, dark to good pale, brings \$37.02 to \$40.68 per cwt.; Chilian, \$38.88 to Chilian, pile 2, \$9.12 to \$9.60; Chilian, pile 3, \$8.16 \$39.48; West African, \$38.88; East African, \$39.48.

Liverpool, Eng., Nov. 24. Taylor & Company.

MEDINA.—The offerings of comb continue unexpectedly heavy, and western stocks are offered by distributors in the East in lots of ten cases or more at ridiculously low prices. Nothing could be more detrimental to the market than the present offerings. (See Wesley Foster's comments in GLEANINGS, Dec. 1). We hope, however, for an improvement after the holidays, as we do not believe the stocks are as excessive as offerings indicate. No new developments in the extracted market.

The A. I. Root Co.

HONEY MARKETS

continued

SYRACUSE.—There has seemed to be less honey retailed by grocers for the last week or two than for some time, which is affecting the jobbing trade to a degree. There also seems to be a goodly supply in the hands of the dealers at present. Extra fancy, per case, brings \$3.80; fancy, \$3.60; No. 1, \$3.36; No. 2, \$3.00. White extracted honey brings 8 to 9; light amber, in cans, 8; amber, in cans, 7 to 8. E. B. Ross.

Syracuse, N. Y., Dec. 9.

FLORIDA.—The demand just now is poor. Very little is on hand at present. Almost all on hand is of poor grade. Some little first-class stock is on hand. We quote white extracted honey, per lb., 8c; light-amber, in barrels, 5; amber, in barrels, 4. Clean average yellow beeswax brings 30 cts..

Wewahitchka, Fla., Dec. 7. S. S. Alderman.

CUBA.—Light-amber extracted honey, in barrels, brings 48 to 49 cts. per gallon; amber, in barrels, 48 to 49. Clean average yellow beeswax brings 31. Matanzas, Cuba, Dec. 8. A. Marzol.

CANDY

Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter? It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

The Youths' Companion
and Gleanings in Bee Culture, one year, \$2.75

BEE SUPPLIES Send your name for new catalog.
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**The SAVINGS
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ASSETS OVER ONE MILLION DOLLARS

STRAWBERRY (OF ALL KINDS) PLANTS

Fine stock of the wonderful Ever-bearing plants at right prices. Small fruit plants for farm and garden. Write for catalog. Return this ad. and several fruit-growers names for one-half dozen Everbearing plants free.

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"SUPERIOR FOUNDATION"
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Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

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Our catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

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SENT FREE! JUST OUT Model 8 Daylite

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WE SEND PREPAID, NO MONEY DOWN, 10 NIGHTS' FREE TRIAL. See it, try it, test it in any way you want in your own home, alongside any other light. Then if you feel like parting with it send it back at our expense. The trial costs you nothing. We take all the risk.

U. S. GOVERNMENT report shows mantle oil light more than 3 times as efficient as ordinary lamp. The Daylite is whiter and brighter than gas or electric, at 1/4 the cost. Pays for itself in a few months in oil saved. No smoke, no dirt, no odor. Uses common wick and is lighter same as ordinary lamp. Simple and safe, cannot explode. **Only oil light guaranteed for 5 years.** Only mantle light with telescoping tube; full details in complete illustrated catalog—**It's FREE.**

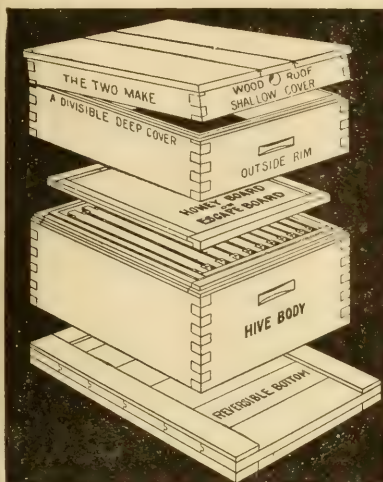
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WRITE NOW FOR LAMP—FREE for ten nights' trial. Tell us if you have a rig or auto, whether you can work spare time or steady, your age, occupation, what territory you want and when you can start.

DAYLITE COMPANY, 221, Daylite Bldg., CHICAGO, ILLINOIS

BURNS
KEROSENE





PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market. ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

A. G. Woodman Co., Grand Rapids, Mich.

The Beekeepers' Review Announcement for 1917

Mr. Floyd Markham now holds the Gold Medal being offered by the Michigan State Beekeepers' Ass'n for the best honey produced in the State. This medal has now been won for the second time by Mr. Markham at our late convention. Mr. Markham also won all the first prizes on both comb and extracted honey at the Michigan State Fair at Detroit, this year. Mr. Markham is without a doubt the World's Champion Comb-honey Producer. How much would it be worth to you, Mr. Comb-honey Producer, to call at Ypsilanti and ask Mr. Markham all about how he proceeds to produce so much better comb honey than the average beekeeper? It would likely be worth a hundred dollars to you during a few years to come, what information you would get at such a visit. You can get it all for a dollar by subscribing for the Review for 1917, for Mr. Markham will write twelve articles for the twelve numbers of the Review during 1917, telling the entire procedure of securing the exhibition honey. None who aspire to greater things in beekeeping should fail to read how Mr. Markham accomplishes such results, which will appear in the Review during the entire year of 1917.

Mr. J. E. Crane is no stranger to the beekeeping fraternity. He has written much at different times relative to his method of beekeeping. We consider ourselves fortunate in securing Mr. Crane to write twelve articles for the Review for the year of 1917, covering the entire season with the bees. Mr. Crane's 40 years among the bees, as he will write it up for the Review, will be mighty interesting reading. In a book it would readily sell for a dollar. You will get this interesting series, including many other features, by subscribing for the Review for 1917.

E. D. Townsend, now owner of the Beekeepers' Review, used to produce comb honey on quite a

large scale. He originated the system now known as "Producing both comb and extracted honey in the same super." This system, if properly carried out, is one of the very best systems of comb-honey production that have been brought to light. The Editor of the Review has run large apiaries on this system of producing comb honey WITH ONLY 12% OF THE COLONIES IN THE ENTIRE APIARY SWARMING. An ideal system for out-ward work for comb honey. The Editor of the Review will write up this entire system of producing both comb and extracted honey in the same super for the pages of the Review for 1917. This series of articles alone ought to be worth many times the cost of the Review for a year.

Space forbids our mentioning more valuable contributions that will appear in the Review for 1917.

We will mention at this time that we are making arrangements with several of our very best honey-producers to furnish us material for the Review, written FROM ACTUAL EXPERIENCE of several years' standing. We will mention just one more of our 1917 correspondents who had 400 colonies of bees. He works the entire 400 colonies for extracted honey alone, in about 100 days, doing the work alone and securing very favorable crops. This party also sells his honey all in his home market at a price much above what is usually secured by producers. There will be many more valuable articles in the Review for 1917, including ALL the valuable papers read at the National Convention at Madison, Wis., next February. But we must stop, as space forbids us saying more about the valuable articles that will appear in the Review for 1917.

We hope there will be none of the readers of Gleanings so short-sighted as to miss sending in their dollars for the Review for 1917. Address

The Beekeepers' Review. Northstar, Michigan

HONEY-JARS

No. 25 1-lb. screw-cap, \$5.00 a gross. ½-lb. screw-cap jars, \$4.25 a gross. Discount on quantity.

HONEY

We have a fair stock of both extracted and comb honey. Price on application. If you have honey to sell, write us. Cat. of apiarian supplies and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers of Honey and Wax

Write us or Prices when in the Market

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. **PREPARE!** Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

OUR GUARANTEE.

We absolutely guarantee our goods to be perfectly manufactured of the best material for the purpose. On examination, if our goods are not as represented, we do not ask you to keep them. Return same at our expense, and we will refund your money, including any transportation charges you have paid. If you purchase our goods from one of our distributors, this same guarantee holds good, as we stand back of them.

G. B. Lewis Company, Watertown, Wisconsin, U. S. A.

Send for catalog giving name of distributor nearest you.

DON'T FUSS

With your old combs and cappings, but send them to us. We will render them into beeswax for you on shares and pay you cash for your share, or we will make it into

Dadant's Foundation for you.

If you prefer, we will pay you our best trade price in exchange for BEE SUPPLIES.

Send for our terms. We feel sure that we can save you some money besides saving you a "mussy" job.

BEESWAX WANTED at all times.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

E. R. ROOT, Editor

A. I. ROOT, Editor Home Department

H. H. ROOT, Managing Editor

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

DECEMBER 15, 1916

NO. 24

Entrances During Winter

It is important that winter entrances be small enough to exclude field mice. A couple of mice will ruin a colony in very short order; and they not only destroy the combs, but they keep the colony in a constant state of disturbance. It is an axiom now that a constant disturbance during winter is sure death to a colony. Many beginners, being anxious to see how their bees are coming on, make the mistake of opening the hives frequently. Fearing that the colonies will run short of stores they begin feeding; and feeding at such a time is likely to cause dysentery. On occasional very warm days when the bees are flying, a quick examination may be made if necessary; but it is far better to have the colonies so well cared for in the fall that no tampering will be needed until spring.

Keeping Comb Honey Over Winter

It should be kept in a room where the temperature does not go below 70 nor above 100 degrees. If it could be kept at 80 degrees F., it would be better. Comb honey will granulate more quickly in the early fall if subjected to extremes of temperature. If it is kept in an atmosphere of about 80 degrees F., before it starts to granulate, from November on till Jan. 1, there is not much danger that it will granulate afterward; but we advise holding it at a temperature as near that of a living-room as possible.

The large demand now for extracted honey will possibly stimulate the demand for comb honey later on. If kept in a warm room it will bring a fair price by next March or April; and the price will continue good until the new crop comes on.

This year of all years, producers and dealers who have comb honey should carefully watch it, and see that it is not subjected to changes of temperature. The producer or dealer who is compelled to carry over his honey until next season will not lose by it, and he may sell at a good figure.

The New Monthly Gleanings

AS announced in our issue of Nov. 1, GLEANINGS IN BEE CULTURE will become a monthly with its next issue, January 1, 1917. We have little to add to our original announcement of this important change in GLEANINGS' publication, except possibly to correct the wrong impression that the change from semi-monthly to monthly publication was to be made chiefly with a view of curtailing expense in these days of excessive cost for every kind of publishing. This was not at all the determining consideration in making the change. On the other hand, the fact is that our plans for publishing the new monthly GLEANINGS call for a larger financial outlay than that required for the semi-monthly. In size, in mechanical and artistic quality, in editorial amount and quality and in every other detail the new monthly will, we hope, surpass the former semi-monthly.

We wish to repeat with added emphasis what was said in our original announcement of the change, which was this: "The first and foremost purpose of the change from a semi-monthly to a monthly is to give the editors of GLEANINGS the needed time to make a better and handsomer journal." That expresses what was and is the one consideration in deciding upon the change from semi-monthly to monthly—to make a bigger and better and handsomer and more useful journal for our readers. As we further said in making our first announcement of the intended change: "There is no good reason for continuing a semi-monthly if it stands in the way of an improved monthly publication of a higher class."

We are glad to say that we have had some very satisfactory and explicit confirmation of this view from our readers. While some have written us expressing regret for the change from the semi-monthly to monthly, very many more of our readers have written us expressing approval of the change to the monthly, saying that a once-a-month publication for beekeepers

is sufficient, and that they would prefer to have GLEANINGS reach them in a single journal monthly than to receive it in separate journals twice a month. We believe that this judgment of a very great majority of our readers who have written us commenting on the intended change will be concurred in by most of GLEANINGS' followers.

We have intentionally and purposely refrained from drawing any highly colored picture of what the new monthly GLEANINGS is to be. We expect it to be a decided improvement on the old semi-monthly GLEANINGS. We are indeed enthusiastic about it, but we have repressed this enthusiasm so far as printing it, preferring to let fulfillment rather than promise furnish the basis on which our readers should judge us.

Accordingly, we shall submit the case of the new monthly GLEANINGS, without argument in advance, to the great jury of our readers, hoping for a unanimous verdict of approval when they have weighed the testimony that its first appearance will bring them.

Moving Bees During Midwinter; Location of Yards

DURING mid-winter it is easier to move bees a short distance than during summer. If they are put into a cellar they can be placed the following spring anywhere, altho Mr. Dadant, of the *American Bee Journal*, feels that it is desirable to put them back on their old location. During mid-winter or after settled cold weather has set in we have moved yards short distances without any trouble.

If bees are to be moved during winter, the question of location should be carefully considered. There are three important requisites: First, accessibility to a common highway; second, windbreaks; third, shade. If a yard is located in the middle of a piece of woods or pasture two or three hundred yards from the general roadway, it means that an automobile truck or even a horse and wagon will have difficulty in reaching the yard in early spring when the frost is coming out of the ground. It is very expensive and wasteful of time for one man or two men to tote supplies crosslots over soft ground, across creeks and fences.

The second requirement, windbreaks, is very important, especially if the bees are wintered outdoors. Experience is proving that, while winter packing is essential, a screen of natural windbreaks is even more

so. An artificial windbreak, such as a high board fence, is better than nothing; but better still are hedge fences, trees, or anything that will break the force of the wind from those directions whence the prevailing winds come. Over and over again we have found that our colonies that are well packed out in the open will either die or be weak in the spring, while those well screened would be in the best condition.

Shade is not essential, but quite helpful during hot weather and during the swarming season. It may be secured artificially by means of shade-boards; but small deciduous trees that shade the hives only during certain hours of the day and certain parts of the season are more convenient, and more comfortable to the apiarist.

During these winter months plans should be made to find good locations if extra ones are needed. It is important to select such positions as furnish these three requirements, as they not only mean economy but more honey in warm weather.

Drifting

THIS is a newly coined word that has been creeping into our nomenclature, and now for the first time finds a place in the A B C and X Y Z of Bee Culture. It means exactly what the word signifies—bees drifting from their homes by mistake into other hives. Young bees especially are inclined to drift at times. In their play-spells in spring and summer they will run out like a little swarm, and then gradually work back into the hive. One playspell begets another, and the result may be that there will be several colonies with a big demonstration in front. Young bees when out for the first time in the season after getting a considerable distance away from the parent hive will sometimes join the entrance where there is the largest number of bees flying, whether it is their own hive or not. The result is that one colony will be weakened and the other strengthened in numbers.

But the drifting that does real harm takes place when bees are set out of the cellar in early spring or when hives are placed too close together. Sometimes the drifting is aggravated when a high wind carries bees, young and old, clear across the yard, with the result that they will join almost any entrance, especially if they are a little confused as to where they belong. The effect of this is to weaken some and to give too many bees to the others. The former die of spring dwindling, and the latter from starvation.

Drifting is apt to occur where four hives are placed in a winter case because of the proximity of the two entrances on a side. When a nice warm day comes on during mid-winter, the inmates will come out in a general cleansing flight. The balmy air and sunshine keep them flying. Some entrances will be having more bees in front than others. As the day cools off, the bees are quite inclined to join the entrances of the strongest flyers, with the result that one colony becomes too weak and the other too strong. In the colder climates there is less trouble from drifting, especially if winter starts in snug and cold, and stays cold all winter till spring. Mr. Holtermann, for example, has no trouble from drifting, while we here in Ohio, using the same kind of winter cases, every now and then will find one colony weak and one strong, for no other reason than that the bees on a good fly day had drifted from their own to another hive.

Drifting when bees are put out of the cellar can be minimized by setting the bees out at night when there is a prospect of a nice day following. The barometer or the daily paper will usually tell what one may expect for the following 24 hours. If bees are put out the night before, with the prospect of a good day, they will get themselves settled down during the night, and the next morning gradually come out one by one, as the weather warms up. If the day is still, there will be very little drifting. If, on the other hand, the bees are set out on the first warm day, the general disturbance incident to moving will stir up every colony set out. The result will be that the air will be full of bees. Experience shows that the strongest colonies will draw from the weaker on occasions like this, as the bees are inclined to join the crowd where there is the most flying.

Sometimes the drifting nuisance can be controlled, and at others it cannot; but when it takes place the apiarist should equalize the colonies before some of them die of spring dwindling and others of starvation because there are too many bees for the stores.

The Spacing of Brood-frames and its Relation to Wintering and Swarm Control

In our last issue, page 1129, reference is made to a statement put forth by Allen Latham, supported by C. P. Dadant, to the effect that $1\frac{1}{2}$ -inch spacing from center to center in connection with other factors for

control tends to reduce swarming. While $1\frac{3}{8}$ -inch has been the standard in this country for 30 years, it has been generally believed that $1\frac{1}{2}$ or $1\frac{3}{4}$ is better for wintering. Some beekeepers, therefore, while they use $1\frac{3}{8}$ during the summer, space wider during the winter. But apparently no one has held that the $1\frac{1}{2}$ distance tended to reduce swarming until Mr. Latham called Mr. Dadant's attention to the matter. Previous to that, the latter had never given the question any serious consideration; but in view of the fact that he had so low a swarming ratio—lower than that of any one else who used large hives when running for extracted honey—he began to think there might be something in it.

Practically all modern self-spacing brood-frames of various kinds are spaced $1\frac{3}{8}$ inches from center to center. This is true of the Hoffman frame, the Hoffman metal-spaced frame, the Danzenbaker closed-end frame, and various other forms of frames using metal spacers, nails, tacks, or staples.

The question naturally arises, "How did the $1\frac{3}{8}$ -inch spacing come to be adopted thruout the United States after the $1\frac{1}{2}$ seem to have the preference of some of the best beekeepers in the United States and Europe?"

In 1890 E. R. Root, on one of the first safety bicycles that was ever built, made a trip thru the state of New York, visiting some of the large honey-producers, among them particularly being Mr. P. H. Elwood and Mr. Julius Hoffman. The former was then, and is still so far as we know, using the $1\frac{1}{2}$ -inch spacing with his Quinby closed-end standing frames. Mr. Julius Hoffman, who adopted the frame now bearing his name, had settled on $1\frac{3}{8}$ -inch spacing.

So also had Mr. Langstroth. Mr. Root, after seeing some of the large producers in New York were making a success of self-spacing frames, concluded that the beekeepers of the West who were using unspaced Langstroth frames might perhaps adopt self-spacers to advantage.

The result of the trip thru New York led to a discussion of the merits and demerits of the self-spacing frames. In advocating self-spacers Mr. Root had the support of the Eastern producers and the opposition of the Western beekeepers. The matter was thrashed out pro and con for some years.

An examination of log gums and box hives was not altogether conclusive. The men who favored and advocated the narrower spacing seemed to find in box hives $1\frac{3}{8}$ spacing as the average of brood combs.

The other fellow, who favored the $1\frac{1}{2}$ -inch distance, would find that the wider spacing was the correct average. As a matter of fact, bees, when left to build their own combs, space them all the way from $1\frac{1}{4}$ inches to $1\frac{5}{8}$ from center to center. The distance is less in the center of the brood-nest and wider on the outside. When they build store combs they space them anywhere from $1\frac{3}{4}$ to 2 inches from center to center.

Dzierzon gave $1\frac{1}{2}$ inches as the right distance until Weyprecht, after a series of 49 measurements on natural-built brood-combs, found that the average distance was $1\frac{3}{8}$. These measurements were made on comb in straw skeps. Baron von Berlepsch, by 40 other measurements, verified this result.

In Great Britain, where self-spacing frames were in use to a considerable extent, $1\frac{1}{4}$ to $1\frac{3}{8}$ were the measurements adopted. Those who favored the $1\frac{1}{4}$ measurement claimed that it practically excluded the rearing of drones, because it was practically impossible for full-sized drone brood to mature on this narrow spacing, for the simple reason that the bees would not have room to cap them over. It was learned, also, that quite a large number who used the $1\frac{1}{2}$ -inch spacing had gone to $1\frac{3}{8}$ at an enormous expense. The main reason for this was to discourage the rearing of drone brood and to prevent the storage of honey just over the brood in the brood-combs.

Worker-brood comb, on an average, is $\frac{7}{8}$ -inch thick, and capped brood one inch thick. On $1\frac{3}{8}$ -inch spacing this allows $\frac{1}{2}$ inch between the uncapped comb, and $\frac{3}{8}$ inch between capped worker brood. When drone brood is capped, there is scarcely room on $1\frac{3}{8}$ spacing for the bees to work properly, much less to hover over and keep the brood warm. This matter was discussed back and forth for several years, with the result that the great majority favored $1\frac{3}{8}$ -inch spacing as against $1\frac{1}{2}$.

All Hoffman and other modern self-spacing frames are spaced $1\frac{3}{8}$ from center to center. If it should finally develop that the $1\frac{1}{2}$ -inch spacing in connection with other factors for control exerts an influence on swarming in spite of the rearing of drones, it would entail an enormous expense, not only on the part of supply-dealers but beekeepers as well to change from $1\frac{3}{8}$ to $1\frac{1}{2}$. Suppose that it should be definitely decided that $1\frac{1}{2}$ is better, and that the supply-manufacturers should modify their machinery so as to make the self-spacing frames $1\frac{1}{2}$ inches from center to center. The $1\frac{3}{8}$ -inch frames and $1\frac{1}{2}$ -inch would become interminably mixed, and the beekeeper would be compelled to discard his

old frames. This he would hardly be willing to do, even tho the wider spacing were a proven factor in discouraging swarming.

There is one more reason in favor of $1\frac{3}{8}$ for Hoffman frames. The propolis accumulation will in time increase the width of the end-bars until they approach $1\frac{1}{2}$ inches in width.

In favor of the $1\frac{1}{2}$ -inch spacing as against the $1\frac{3}{8}$, there is the testimony of the Dadants. Mr. Allen Latham has built a let-alone hive that works for nothing and boards itself, allowing its owner to take off the surplus at intervals.

It will be remembered that Mr. L. A. Aspinwall, of Jackson, Mich., invented what is known as the Aspinwall non-swarming hive. The basic feature of this was the separation of the brood-combs so that the actual spacing between the worker brood, instead of being $\frac{3}{8}$ inch would be one inch. Mr. Aspinwall proved that when the combs are spaced wider apart, allowing more clustering room in the brood-nest, the bees did not swarm. To prevent the bees from filling these wide spaces between the combs with extra comb, he put in what he called slatted dividers, which were really dummies made up of a series of vertical slats spaced $\frac{3}{8}$ inch apart, and $\frac{3}{8}$ inch thick. It was found that the bees would occupy the spaces between the slats, and instead of clustering out in front of the hives they would be in the hives. Apparently, then, the ordinary spacing between the brood at a certain season of the year is too close to allow a proper ventilation and to keep down the temperature of the brood. Accordingly the bees when the hive is overcrowded are forced out in front of the entrance and finally swarm.

While the $1\frac{1}{2}$ -inch spacing is relatively only $\frac{1}{8}$ inch wider than $1\frac{3}{8}$, yet it is apparently approaching the Aspinwall idea.

Having said this much in favor of the wider spacing it remains to be proven whether there is an actual reduction in swarming when $1\frac{1}{2}$ -inch spacing is used instead of $1\frac{3}{8}$. If the reduction were proportioned to the reduction in actual measurements, the difference would be negligible, and would hardly compensate for the enormous expense of any changing over.

We have gone into the history of the various spacing distances for the purpose of drawing out discussion. Those who have adopted in their apiaries $1\frac{3}{8}$ will try to prove that that is the right distance. Those like the Dadants who have always had $1\frac{1}{2}$ spacing will feel happy and commiserate the other fellow who has $1\frac{3}{8}$ and can't change.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



"JONATHAN was probably the first Hebrew who tasted comb honey," p. 1081. I wonder, now, I wonder.

HOFFMAN frames are spaced $1\frac{3}{8}$ inches—when they're new. The bees, wise little creatures that they are, think that is too close spacing, and so they plug in bee-glue, seeming to aim to get in $\frac{1}{8}$ inch of it, so as to make the spacing $1\frac{1}{2}$ inches.

J. F. KIGHT, p. 1084, you think a very prolific queen doesn't deliver the goods because it takes so much to feed the brood, and that it would be a paying thing to use her as a helper to weaker colonies. If that were the case, an equally paying thing, and easier, would be to cage the queen part of the time. I don't believe either pays. I don't think the workers of an extra prolific queen are necessarily poor storers; but in any case I think it's a safe thing to rate a queen, not by the number of eggs she lays, but by the number of pounds her bees store.

You say, Mr. Editor, p. 966, that you find out whether another super is needed in three ways: "Watching the flights of the bees going into the entrances; tilting up the supers at the back and looking under; and by hefting or lifting the back end of the whole hive." But you don't say how. I should especially like to know *how* you tell about the need of a super by watching the flights of the bees. [We can't tell without the help of the two other means. Turn to last edition of A B C and X Y Z, under "Frames, to Manipulate," p. 286, and you will see *how*.—ED.]

THE DEMAREE plan for preventing swarming is thus modified by W. J. Sheppard, *British Bee Journal*, 319:

The queen is found and transferred with one frame of brood to the lower body, which is then filled up with empty combs, and a queen-excluder placed above. Next will come a second body, containing empty combs, to receive the incoming honey, shallow frames being preferable. Above the latter second story either wire cloth or a second queen-excluder is placed, and the remainder of the brood is then put in a third story. Between the second and third stories, that is, above the wire cloth or second queen-excluder, a small entrance is provided, thru which the old bees will return to the main entrance below and the drones can escape. All queen-cells are destroyed. Should there be none at the time, the bees will immediately build them in the third story, where they must be

searched for and cut out up to about the tenth day, when the brood will be too old for any more to be built. The wire cloth, or second queen-excluder, can then be removed, leaving the upper entrance intact until the end of the season, if preferred.

"WIND, just wind," is the answer from somewhere near Providence. This "re" apiary locations, pp. 866 and 966. Some time before you and I were boys the glaciers traveled down across here from north-east to southwest, cutting the surface into grooves and ridges. Our prevailing winds are southwest—good nice strong zephyrs. As bees "follow their nose" it just naturally happened that those on the crest and west of the ridges referred to worked on one set of pastures while those on the eastern slopes worked another set, and there was virtually no trespassing on each other's territory. Surely bees go many miles from home. D. A. Jones, when he had his Cyprians on an island in the Georgian Bay, found them working on the mainland seven miles away. Thus writes Arthur C. Miller, and no doubt he's right. The bees' noses are to be reckoned with; and so it may happen that they go seven miles if the wind from that direction entices them, while they may fail to find pasture half a mile away if there is no wind from there.

FIFTY years ago 45 degrees for a beecellar was the orthodox thing. I don't know why, but Dr. Phillips suggests because that was about what could be easily attained. Somewhat strangely, within the past few years 40 degrees has been advocated. Now the tendency is upward, probably due largely to the investigations of Dr. Phillips. About 45 or 50 is mentioned approvingly, p. 1011. I think that can be safely shoved up still more, partly because of my own experience and partly because of what Dr. Phillips says. In his "Beekeeping," page 347, he gives between 57 and 69 as the best temperature for the cluster; and as to the air in the cellar, he says, "The majority of beekeepers consider 40 to 50 as the best cellar temperature, but it is clear that the temperature can usually be raised to at least 50 F. with beneficial results." That "at least" makes 50 the minimum, and it is not unlikely that we may some day settle down upon 50 to 55 as the best cellar temperature. [The cellar temperatures are going up. The new A B C and X Y Z favors 50 to 55.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



It is good news to know that asters yield better after a frost—page 1009, Nov. 1.

The editor discusses the importance of windbreaks on page 1011, Nov. 1. I for one am glad more and more emphasis is being placed on this point in outdoor wintering of bees.

Page 923, Oct. 1, Mrs. W. T. Lively gives some theories on the color variation in honey. While in Florida a few years ago I was told that the sugar-cane syrup grown on high, dry, sandy soil was of much lighter color than that grown on the rich hammock lands.

Except the law had said, "Thou shalt not covet," I feel sure I should covet Mrs. Allen's many acres of crimson clover, page 906, Oct. 1. It must be a comfort to have the gap between fruit-bloom and white clover filled in. The past season we had nearly four weeks after fruit-bloom when bees could gather little.

That announcement in Nov. 1st GLEANINGS that GLEANINGS is to become a monthly after this year has caused a feeling of pain to many who have been for so many years cheered by its bi-monthly visits. We expect, somehow, we don't now know just how, to be "disappointed," and to enjoy the new way as well as the old.

That "sousing method," as Mr. C. D. Cheney calls it, page 986, Oct. 15, of introducing queens with dilute honey certainly seems an improvement over the use of thick honey. The danger, by use of thick honey, of injuring the queen seems to me very great in our cool climate. I am glad, too, to know of his success by this method.

George Shiber, page 853, Sept. 15, estimates there is a saving of one-third of the stores by wintering in the cellar. I have found, by actually weighing, it is even more than a third. About 7 lbs. more is required out of doors than in a cellar, but these figures might vary with the amount of protection given out of doors, the severity of the winter, or the excellence of the cellar.

One of the interesting things about GLEANINGS is that we get interesting pic-

tures of different parts of the beekeeping world. That on the cover, Nov. 1, is especially interesting. The editor tells us that already they have 4,000,000 acres under cultivation in Imperial Valley and very soon will have 2,000,000 more—almost as much as the whole state of Vermont, and vastly more productive.

I have just returned from the New England fruit show at Montpelier, Vt. The magnificent display of fruit, especially apples, will go with me as long as I live. Apples, apples, apples! of every kind, color, and flavor. Surely no other fruit can compare with it. It is the king of fruits. If bees had no other claim to our attention than the part they play in the production of this magnificent fruit they would still be worthy of our thought and care.

The editor puts up a good argument, page 776, Sept. 1, in favor of the use of comb foundation in sections, and I believe he is right. Still, I cannot help feeling that, while a comb built on light foundation may have less wax than one built without foundation, especially if it is drone, as it is apt to be, there is a tenderness or flakiness about the average comb without foundation that the other lacks. But for all that I shall continue to fill my sections with foundation, as the advantages overbalance the objections.

Reference on page 840, Sept. 15, to sweetened spraying solution for destroying insects is of interest to beekeepers. I doubt very much if the formula as given, two gallons of molasses to 50 gallons of water, would attract bees when honey is coming in at all, but it might do so. Would it not be better to substitute glucose or corn syrup, as it is called now, for the molasses? My apples have been seriously injured for a number of years by the apple-maggot or railroad worm, as it is often called. The eggs are laid by a fly that appears usually early in July in this section. Like other flies they are fond of sweets, and a little spraying on one side of the tree seems to answer the purpose. Last July I sprayed with a solution of arsenate of lead and corn syrup, with the result that this fall my fruit is the finest I have had for many years, showing that the corn syrup answers every purpose, and with no danger to the bees.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Loquots and bluegum (eucalyptus) are blooming (November 27.)

No rain since the middle of October. The unusually heavy growth of filaree is fast becoming a thing of the past, as there is no surface moisture to keep it alive.

Did you see those pictures of the Kansas exhibits in the November 15th issue? They make me feel proud of my home state in which I learned the most valuable lessons of my life in beekeeping.

I have been watching my bees work on the stem scars of the umbrella-trees, where the leaves have dropped off. A secretion forms where the leaves are broken away, and the bees are taking it up. Not all of the trees seem to have this secretion; but wherever it is, the bees are there.

I have just killed a queen that has completely puzzled me. I cannot see why she should not have mated, with plenty of drones in the air at the proper time—perfect wings, ideal weather, etc. I supplied her with brood for two months as an experiment, but to no avail. She laid nothing but drone eggs.

Mr. Editor, I stand corrected on that diagnosing matter, page 1032, Nov. 15. But still it seems to me like recommending some new way of curing disease that would be safe for the experienced but not for the amateur. It would be better not to advocate it so strongly as a protection to amateurs, even tho they are warned.

During the past month I have been fortunate in meeting J. E. Wing, the well-known queen-breeder of San Jose. Mr. Wing is touring the southern part of the state with his wife and child, visiting beekeepers in various sections of the South, and getting acquainted. He has a good reputation as a queen-breeder. Last year he put out over four thousand queens besides many pound packages of bees.

There is a motive for every action of the bee. To be able to solve the meaning of their actions is to be able to add a contribution to science. If queen-cells are torn

down, virgins killed, or if introduction fails, there is a strong chance that one is trying to force nature in an unnatural channel. When bees are busy they will accept more help than when they have plenty of time to look after details. Then, too, the old bees are largely engaged in the field when there is a honey-flow; but when it stops, look out for trouble, for it is impossible to "pull anything over them" as easily as over the younger generation.

A number of my hives are three supers high. Last September I placed a full super of honey on quite a number that were empty, or comparatively so, in the middle super. I recently made a visit to my apiary on a cold day, having the task of giving honey to some colonies that were short. I was greatly surprised to find that the bees were clustered in two divisions in nearly all of these hives. In the brood-chamber there was a good supply. The next super where the combs were empty there were no bees. In the upper super, where the honey was, there were many bees, doubtless their mission being to protect the honey above. Where there were no excluders on, all three sections were occupied, the main portion being in the upper or middle sections.

Dr. Bonney asks, page 1086, Nov. 1: "I wonder if it will surprise Mr. Chadwick when I tell him that my wife and I have charge of the postoffice in this little town, and that we know certain packages must have been willfully broken or else handled in a very violent manner." That packages containing liquid are often broken in the mails and arrive at their destination empty is no sign that they have been tampered with. When such a package is broken the muss must be cleaned up and the rest of the mail protected, and it would not be the policy of wisdom to put a broken package back in the mails with enough left in the container to destroy other mail matter still further. I cannot agree with you, doctor, that mail matter is willfully destroyed or appropriated, as you suggest, by postal employees. I have helped to clean up some of these "musses" and know what it means. If you have reason to believe that the mails were being tampered with, it was your plain duty to report the matter thru the proper channel. I consider your criticism on the postal employees as being based on insufficient knowledge.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Even Uncle Sam has learned the value of honey as a food, and now furnishes it to his soldier boys as a part of their "rations." At Camp Wilson alone, located near Fort Sam Houston, San Antonio, Texas, tons of extracted honey have been used up by the guardsmen encamped there. Ten cents a pound was paid for it in 60-pound cans, which is indeed a good price if we but consider that the finest grades of extracted honey sold at 5 and 6 cents a pound earlier in the year.

Dr. Miller, p. 1061, Nov. 15, proclaims surprise at the "physical possibility" of bees building drone-cells on one side of a comb and worker on the other. I proclaim surprise at the possibility of such a thing never having occurred during Dr. Miller's long years of beekeeping experience and close observation as intimated by him in answer to Allen Latham. "Locality" again must have something to do even with this matter. In my locality I have frequently seen such stunts in naturally built combs, in combs built on foundation, and in cases where the worker-cells of part of one side of a drawn-out comb were torn down and replaced by drone-cells.

GLEANINGS to be a monthly magazine hereafter! Good! I have called GLEANINGS a magazine for several years, because it has been more like one than like a journal; yet it was not quite complete nor large enough to belong in the class of other magazines of the country. I feel, too, that the monthly issue will be welcomed. Two weeks fly by very rapidly with the average busy beekeeper, and it gives him hardly time to read and properly digest the contents of one issue before another appears. Even if the larger monthly contains more reading-matter it can be more easily "handled" because it is all bound in one volume, and that with comparatively less advertising matter to "wade thru" than in the case of the semi-monthly.

HOW BRENNER GETS CELLS.

In relating some of Mr. Hy Brenner's remarkable success in queen-mating, in the last issue of GLEANINGS, I promised to de-

scribe the method employed by him for getting queen-cells.

After providing a cell-building colony, strong and queenless, in the usual manner, he inserts a comparatively new, empty, and perfectly clean worker comb in the center of the brood-nest of his breeding colony for the breeding queen to fill with eggs.

Next he provides an empty super with cleats just below the super rabbets, so that these will support a frame laid flat on them. The open spaces on either side of the frame and super sides are filled up with two pieces of board laid on the same cleats that hold the frame in place. This super is then placed on top of the strong cell-building colony. Mr. Brenner now takes the comb with eggs from his breeding colony and prepares it for the cell-builders. With a sharp implement he destroys the entire length of the first row of worker-cells in the comb of eggs. Then he skips one row and destroys the next, and so on until each alternate row of cells has been demolished. Reversing the comb from side to end, he proceeds in the same manner across the comb. When complete, there will be a checker-board of single worker-cells, each containing a worker egg.

This comb is now laid carefully in place on the cleats of the prepared super on the cell-building colony. Altho several inches away from the top-bars of the brood-frames, it is directly over the broodless brood-nest proper, and the nurse bees soon take possession of the prepared comb.

According to Mr. Brenner's statement, as many as 95 cells have been built on a single one of these combs. Nothing is done on the opposite side of the prepared comb, and, when placed in position, the whole top of the super is covered up warm with old sacking or the like. The bees do not have access to the upper surface of the comb, therefore, and the eggs in these cells simply dry up.

The progress of cell-building can be easily watched by carefully lifting the comb and holding it perfectly level, being careful not to jolt the inmates of the queen-cells, thus crippling them. When these cells are fully "ripe," almost ready to hatch, they are cut out of the comb by cutting right thru it. Mr. Brenner gives them to the newly formed nuclei with cell-protectors. If the cells are to be given to stronger colonies he prefers to place them in Rauchfuss cell-protectors.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



PIONEER PATENTS.

A friend and neighbor beeman of mine, at Glenwood, Fla., has shown me an ancient certificate that will elicit a smile from the modern apiarist. It reads as follows:

"To all whom it may concern: This certificate entitles R. B. Sproul, of Lee Co., Illinois, to make and use W. A. Flanders' semi-circle and Book Bee-hives, patented July 14, 1863, and April 5, 1865, upon one farm only.
Elijah Benner & Co."

Can you beat it? How many of the fraternity know anything of W. A. Flanders? Hands up—but remember you will be giving your age away.

* * *

THE HONEY METHOD AGAIN.

Many times the omission of some apparently simple factor of a manipulation will spell failure. Practically all reports from beemen who have tried the honey method of introducing queens have been favorable. But one report from Arkansas is so distinctly dismal that we cannot refrain from quoting it in full here, as a warning to others "how *not* to do!" It is as follows:

Mr. E. G. Baldwin:—I have tried your method of introducing queens as stated in Gleanings, July 1, page 525, to my sorrow. It did not work for me. I ordered a queen by mail, and thought I would introduce by the honey method (as I had lost the last queen I tried to introduce by the cage method). It seemed easy. I therefore removed the old queen and took about half a cup of honey and soured the new queen in it, and poured it into the hive. It wasn't fifteen minutes before the bees began to get in an uproar. Whether the queen left and came back I don't know; but anyway this morning the bees were all excited. After awhile I noticed them dragging her out dead.

Wm. R. Lindsey.

Buckner, Ark., Aug. 30.

In the first report we gave in these columns (June 1, p. 525) we omitted to emphasize the fact that the entrance should be contracted during the operation, and remain so for a day after it. But in the recapitulation, p. 845, we did emphasize this essential feature as follows: "Then close the hive-top, and see that the entrance is narrowed to a point where robbers can be kept out according to the strength of the colony."

Without doubt our correspondent from Arkansas had a full-sized case of robbing on hand in about ten minutes after the op-

eration. Of course the queen was killed. Odd if even the colony escaped. We are sorry we omitted the entrance-contraction clause in the former article. It is an essential to success with the method. An experienced beeman might have thought of it anyhow, but not so an amateur. We sincerely hope that our correspondent will give the method another thoro trial, and report. We feel sure the method will work all right if performed all right.

* * *

ANOTHER HONEY-PLANT REPORTED.

Recently a specimen plant was mailed as from southwest Florida to which the local name "minkweed" had been given. We have never before heard that particular local name. The sender declared it is a splendid nectar-yielder, and that there were hundreds of acres of it near him. He added that he had been told it was the boneset of the North (*Eupatorium perfoliatum*). The plant is not the boneset at all. It is the vanilla plant, or deertongue (*Tribisa odoratissima*), one of the numerous and widely differing members of the great thistle family. The stem is smooth, the lower leaves are spatulate, the upper are oval or oblong, and smaller. The heads have about 7 or 8 flowers that form a convex cluster, each flower on its own stalk, and rising from its own stem. The blossoms are purplish, verging on white. It grows in the flatwoods pretty generally over the state. The thistle family is pretty widely represented in eastern-central Florida, there being no fewer than 147 genera and species in Volusia Co. alone. Of these the following are among the honey-bearing plants: Thistle, three species: ironweed, *Liatris* (or blazing-star); *Chrysopsis* (golden aster). We have six species of the golden aster. Of goldenrod we have 7 species in the county. Of asters proper we have 7 species; sunflower, five species; and cosmos, cultivated. Just now the bees are working vigorously on the asters, the wild-sunflowers, and the Spanish vines (*Antigonon*.) Oddly enough the bees never seem to work on the goldenrod hereabout, tho we have made special examination many times. Goldenrod seems to vary thus in different parts of the country. Dr. Phillips, we recall, told us a year ago that the bees never touch the goldenrod in the region of his home near Washington, D. C. We wish other beemen all over Florida would report whether the bees in their localities work on this plant.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



BEEHIVES

THE accumulation of the past three years has made me willing to write upon the well-worn topic of the beehive, because there is, perhaps, no point relating to bee-keeping about which I am asked so many questions as this. Allow me to say at the start that it is well to understand that the bees themselves are not much concerned about the shape or dimensions of their home. They will store as much honey, other things being equal, in a shoe-box or part of a barrel as in a hive patented by some elated novice. Hence the form of the hive is only a question of convenience to the apiarist. The beekeeper may make its shape to secure the object he has in view. But from the stack of letters I have on this subject it would seem that beekeepers have many objects, as hives are wanted for producing comb honey; for extracted honey; for wintering bees; for preventing swarming; for producing bees; for rearing queens, etc. Fortunately a different kind of hive is not required for each.

The hive best adapted to the production of honey is that which the majority are seeking after; and if a hive is to be selected for this one object an eye may be had also to other objects that are subsidiary. To illustrate: While queen-rearing is a legitimate department of bee-keeping, yet the characteristics of the hive best adapted to that branch are of special interest to only a few, and thus the hive in use for the production of honey, both comb and extracted, will generally be found sufficiently serviceable for this branch of our pursuit. The successful production of honey is the one overshadowing object of apiculture; and therefore, in my view, there are some positive qualities to be sought for in any hive at all well calculated for an apiary to be conducted for the highest net profit.

Where an apiarist has a love for exploring the inside of the brood-chamber during the honey season, the contraction of the brood-chamber at the height of the flow will bring almost astounding results in white honey, which, as a rule, brings almost double price over that from buckwheat or fall flowers; yet, considering that the rank and file are more prone to leave the bees alone, only as manipulation tends toward better success, I consider the ten-frame Langstroth hive, when used in connection with the Italian race of bees, to be the better

for the average beekeeper. This hive gives sufficient room for the production of brood so that the maximum as to the number of bees can be accomplished in good time for the harvest from clover and basswood, while it allows of sufficient stores to be carried past the winter consumption, so the bees feel no need of retrenching by way of scrimping the brood during the latter part of April or in May. Plenty of stores in sight at all times is with the bees like a good account in the bank with the average thrifty family who have something to invest where a profit can be made as well as the wherewith to tide over a period of scarcity. And a colony of good Italian bees seem to know just when and where a good investment of stores looking toward a return in numbers of bees at just the right time in the season can be made, and so we find them using on their stores quite lavishly the last half of May and the first two-thirds of June. They will retrench in brood as the flow of nectar becomes more bountiful after June 20 till the close of the basswood bloom in July. Thus with the Italian bees the ten-frame hive will accomplish all that could be accomplished with the small hive and contraction advocated so vigorously during the latter part of the nineteenth century by the beekeepers living north of latitude 40, and without all of the manipulation and feeding which this contraction or small hives required.

The ten-frame hive need not be very expensive. Thirty to forty cents should purchase lumber enough of sufficiently good quality for body, cover, and bottom. Lumber with sound knots will answer very well. The apiarist should not be led by one or two good crops into failure in point of economy. Then this ten-frame hive is not cumbersome. Its bulk and weight will allow of its being handled easily by one man when it contains a colony of bees with stores enough for winter, as a rule. If the hives are to be seldom moved, then a large double-walled or chaff-packed hive may prove an exception.

In the production of extracted honey I consider this ten-frame hive as good as any, as story after story can be placed or tiered to the utmost requirements of either the bees, queen, or apiarist. If it is undesirable that the queen have access to all of the hives, a queen-excluder may be placed between any two stories, and thus the extracting-frames kept free of brood.

IMPORTANT CHANGES

To All Readers of Gleanings in Bee Culture:

We shall make some important changes in the business conduct of GLEANINGS on and after Jan. 1 next as follows:

TO BECOME A MONTHLY.

As announced in the editorial columns of Nov. 1, GLEANINGS will become a monthly instead of a semi-monthly on Jan. 1. We hope to make our journal the handsomest and best bee publication of the world—and better than anything hitherto known in the apicultural publication field.

ALL SUBSCRIPTIONS TO STOP ON EXPIRATION.

On and after March 1, 1917, all subscriptions will be promptly stopped on expiration and all subscriptions in arrears, after due notice, will then be discontinued. Altho many of our subscribers have preferred to have GLEANINGS "continue right along" (and have so expressed themselves), a growing number of our readers today express a preference for the better business method of stopping subscriptions on expiration, and this is right. There is no more reason or justification for a publisher's sending another order (or year) of his journal, without the express order or cash payment of the subscriber, than there is for the grocer to send without an order a second delivery of coffee because his customer has given one or several previous orders for coffee. Accordingly, beginning March 1, we shall adopt the better plan and run no one into debt for a subscription to GLEANINGS. The rule will be: Stop on expiration.

ONE EXCEPTION to the above rule will be willingly made by GLEANINGS, namely; when a subscriber writes us and expressly states that he wants GLEANINGS continued beyond his subscription date and that he will pay for it at some designated time, we shall be glad to continue such subscription.

PREVIOUS SUBSCRIPTION OFFERS.

On and after Jan. 1, GLEANINGS is forced to withdraw all subscription offers of other years, except such as may be contained in the subscription catalog of 1917 or in the bee-supply catalog of The A. I. Root Co. for 1917. Many of the combination subscription offers of other years cannot be made good for the reason that books and articles then offered are no longer obtainable. Unparalleled advances in prices have made others of these offers impossible. These old subscription offers have also made endless trouble and delay in our Subscription Department and to our subscribers. GLEANINGS is not advancing its subscription rates, as very many magazines are doing, altho the cost of publishing the new monthly GLEANINGS will exceed the cost of publishing the semi-monthly of the past. But we must limit our clubs and premiums to PRESENT liberal offers. You will receive the current subscription catalog when notice of the approaching expiration of your subscription is sent you—a matter we shall always carefully attend to in advance so that you may not lose a single number of GLEANINGS if you renew promptly.

PREMIUM OFFERS FOR SECURING NEW SUBSCRIBERS.

Instead of the former merchandise premiums and subscription extensions offered for new subscriptions, we shall offer agents cash subscription terms or an equivalent in extension of their own subscription. Such terms may be had on application.

A new monthly, a rule of never running our subscribers into debt, and a restriction of combinations and premiums to present offers, are changes that we trust to make welcome to our every reader.

Grateful for your past favors, we hope for your continued favor.

Very truly,

GLEANINGS IN BEE CULTURE

The A. I. Root Co., Publishers.

GENERAL CORRESPONDENCE

ONE OF THE SKILLED CANADIAN BEEKEEPERS. E. T. BAINARD, OF LAMBETH, ONTARIO

BY R. F. HOLTERMANN

Traveling thru the county of Middlesex, one of the best agricultural counties in Ontario, I reached the city of London. From there, going by the electric line, I reached the home of Mr. and Mrs. E. T. Bainard. This was not my first trip to the Bainards; but since my last visit quite a number of changes have taken place.

Mr. Bainard has been keeping bees for twenty-five years. When a boy on the farm he became interested in bees thru reading articles in the *Farmers' Advocate*. That he had a natural inclination in that direction was pretty well shown in the way in which he studied the bumblebee in its habits, keeping their nests under his observation. At first, beekeeping was combined with farming; but as success warranted, and circumstances permitted, the farming part was laid aside, and for the last seven or eight years beekeeping has been his sole occupation. He is now running three apiaries, each containing in the neighborhood of one hundred colonies. He confines himself exclusively to the Heddon hive. Two apiaries contain eight-frame hives, and the last ten frames, which is equal to a 13-frame Langstroth hive. Mr. Bainard produces extracted honey only. From a few words dropped, I believe that there is a little controversy on this question between Mr. and Mrs. Bainard, the latter wanting to devote one colony to the production of comb honey for occasional family use, and, as I put it, to amaze her friends with the beautiful comb honey her husband can produce.

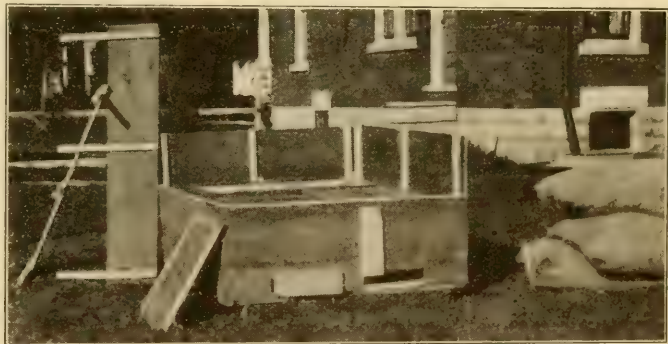
The source of honey is almost exclusively clover; but under favorable conditions a little basswood is obtained. This shows that the honey-flow is not prolonged.

Four colonies in a case is the method of wintering. The outside entrance thru the case to the hive is about 2 inches high by $\frac{3}{8}$ wide; and by means of a movable piece

which swings on a screw the entrance can be enlarged to 2 x 10 inches. The hive entrance is $\frac{3}{8}$ in. deep by the width of the hive.

That Mr. Bainard has learned the value of a sheltered place I can best explain by quoting him. He said, "At one time I tried to get a cover to a hive that would not blow off; but now I seek to have the apiary where the wind will not blow the covers off the hives." He aims to have the outer cases 8 or 10 in. from the ground, considering that they are dryer in the spring of the year, and there is less danger from the ice on the ground chilling the flying bees.

The first visit to the bees—to satisfy curiosity—takes place in early March; but on this trip, if any attention is needed it is



Bainard's winter case with the upper pieces partly removed. These are separate from the lower main part.

given. Rarely an outer case may need to have the snow removed. If there are dead colonies the entrances to such hives are closed. Whenever weak colonies are found the entrance is contracted with paper. This the bees can remove as fast as they require the entrance room.

The next visit is made in fruit-bloom when more room is given by adding another section of the Heddon hive to the two sections upon which the bees are almost invariably wintered. The need of the bees is judged from outside conditions. In 1913 one colony had a super on before fruit-bloom; but this is rarely the case. The bees are unpacked some time during fruit-bloom; but if the bees do not do much during that

period they are left until later; but they are always unpacked before the clover flow.

The work of packing and unpacking is lightened very much by having the permanent nailed sides of the packing-case no wider than the depth of the hive. After the hive is set in the case, a board the depth of the packing is set on top of each side, kept in position by three "stakes" which extend down just inside of the case wall. The joint between the two parts is beveled to shed water. There is five inches of packing at the sides and ends of the hives, and about 8 inches on top. The extension-boards are not nailed to the case; and during the summer they can be laid inside of the case to which they belong. I must confess that I consider this plan decidedly superior to the full-depth case that I use.

Both summer and winter Mr. Bainard uses a honey-board $\frac{3}{8}$ inch thick. In the preparation for winter he breaks the propolis joint after the bees are packed. The only cover he has in summer over the honey-board is an inverted "pan" made of galvanized iron for shedding water. This pan is put over the hive in the case, with about 4 inches of packing below and 4 above. A gap of several inches is left at the backs of the hives. Mr. Bainard claims without any hesitation that in this way no moisture collects under the metal covers.

WEIGHING AND FEEDING.

The hives are weighed as they are packed; and when necessary the bees are fed after weighing, the time for this being as near Oct. 1 as convenient.

In melting sugar Mr. Bainard heats the syrup, puts in the sugar, and uses a stick with a suction contrivance at the end which moves the sugar on the bottom of the tank and soon dissolves it. This stick is what is called in Canada a "Manitoba washer." In my estimation the plan of feeding the bees after packing is correct.

LEVER FOR LOOSENING SUPERS.

Mr. Bainard has shown considerable mechanical ingenuity in designing a clamp or lever for catching one side of the hive or super below and the other side of the super above. When the lever is moved, the super above and the hive or super below are wrenched in opposite directions and loosened. He uses this device when examining the colony or when putting on escape-boards.

HIVE-LIFTER.

If I am not mistaken I am the father of a hive-lifter myself—one of the first published; but—well, it took too long to use it, even if it lightened the work. I could ad-

just myself as a lifter to the hive more rapidly than I could locate the contrivance; and physical energy in a rush did not count for much. But Mr. Bainard has not only designed a lifter but he has used it. It is simple, saves a lot of heavy lifting, and perhaps he is not in quite as big a hurry as I am. It is made as light as efficiency will allow, weighing only 23 lbs., and it will support 200 lbs. The supers can be raised high



Bainard's hive-lifter in use raising supers.

enough to permit an examination of the brood-chamber underneath. The lifting-device has four legs, and has in connection therewith and at the top a part like an old windlass on a well. The shaft is made of five-inch gas-pipe. The super is clamped or clasped at the ends, and works best if there is a cleat; but it can be made to fit into the hand-holds generally found.

IMBEDDING-WIRES.

The wires are imbedded in the foundation by means of electricity.

POINTS IN MANAGEMENT.

Mr. Bainard has found that a small entrance to a hive, giving insufficient ventilation to the colony, irritates the bees. This first came prominently to his attention in an outyard when for experiment the $\frac{3}{8}$ x 3-inch bridges, in front of the winter-packed hives, were not removed when unpacking. The object in leaving so small an entrance was to see if the bees would go more readily into the supers. The weather turned very hot about that time, and the bees became cross, and remained so for quite a time afterward. After-experience confirmed this. This quite agrees with my own experience when moving bees during hot weather.

EXTRACTING CONVENIENCES.

A tank some 6 feet deep and 3 wide is used as a storage-tank. Two inches below the top there is an overflow pipe which returns the honey to the extractor when the tank is full. The tank holds about 3000 lbs.

The honey which drains from the cap-pings is carried by gravity into the extractor, entering the can just below the level of the baskets to prevent a back flow of honey from the extractor. The uncapper stands close to the extractor. A central extracting station is used, to which all the honey is hauled and extracted.

To be able to strain honey rapidly, a very unique plan has been adopted; and that is to run a quarter-inch steam pipe in the center of the eight-foot pipe thru which the honey is pumped from the extractor to the tank. Mr. Bainard said that this pipe should not be too hot, and that the flow of steam, therefore, must be regulated. The upright pipe should really contain only condensed steam. He thinks that a better way would be to have the heat outside of the honey-pipe.

A HONEY-STRAINER.

Another beekeeper, John W. Campbell, who lives next door to Mr. Bainard, but who has his bees nine miles from there, gave me some interesting information. Mr. Campbell uses a new strainer material which Mr. Bainard has also adopted, as it is far superior to cotton cheese-cloth. Linen cheese-cloth is used. It is stronger than cotton, and the threads are less fuzzy, so that the material acts more like fine wire cloth. This strainer is laid on a 5/16-in.-mesh wire cloth which is fastened to a hoop that catches on the top of the storage-can. The cloth is removed frequently—at noon and before starting extracting in the morning—and put into a pail of cold water. After the honey dissolves it is rinsed and shaken out. Perhaps some of the readers of *GLEANINGS* do not realize why a honey-strainer should be washed in cold water. It is to prevent the

wax from melting and sticking to the threads.

A LEVER FOR PUTTING ON COVERS.

Mr. Campbell told me of a way to put friction-top ("slip top" or "penny lever") covers on honey-tins, which is away ahead of my own way, and I have put on many thousands during the last ten years. He simply hinges a lever to something solid with a round piece of wood on the under side of the lever that will fit inside of the cover to be put on. He regulates the height for each tin by using varying thicknesses of blocks under the tin. The covers are pressed into place by pressure of the lever. Very rapid work can be done in this way.

Mr. Bainard told me that the late Wm. Elliott, of Adelaide village, near Lambeth, had a device used in connection with putting wet combs back on the hives after extracting. It consisted of a solid bee-escape board with an additional opening covered by a slide, thus controlling the communication between the brood-chamber and the supers containing the wet combs above. The slide could be manipulated from outside of the hive. The bee-escape in the board also had a shield above it to prevent dead bees and wax from falling into the bee-escape, and perhaps clogging it. It seems that Mr. Elliott used these boards on top of all hives upon which wet combs were to be placed, and left the means of communication closed until night or until after all the supers had been located. This prevented the very undesirable excitement and tendency to rob which is well known to be the result of the bees having access to the wet combs.

For the edification of the inexperienced I wish to say that it is a comparatively easy matter to remove combs of honey from the hive by means of bee-escapes, and to extract the honey in a bee-tight house; but the excitement is sure to begin as soon as the wet combs are put back upon the hives. The bees appear to sound an alarm which sets every field bee on the hunt.

Brantford, Ont., Canada.

OPENING UP THE FRONT OF THE HIVE DURING HOT WEATHER

BY WALTER J. BAILEY

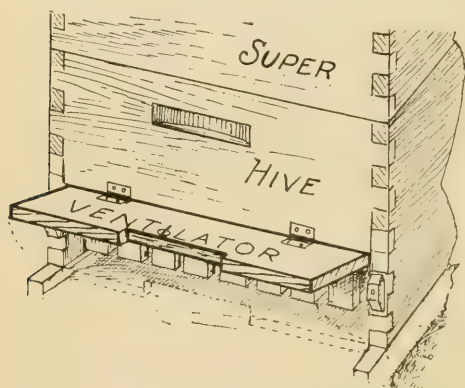
Every experienced beekeeper who keeps bees for profit and not pleasure is aware that, in order to secure the largest amount of honey, he must cut swarming short if he possibly can. When operating for extracted honey we can control the swarming much better than when running for section honey.

When I first became a beekeeper I had trouble with the swarming problem. My bees would get a nice start in the supers, and, about the time the supers were two-thirds full, the bees would swarm, and there I was with a partly filled super. Of course I gave such supers to other colonies to com-

plete; but if the bees can be kept at home, and swarming prevented, we can secure a greater amount of surplus honey.

I have a plan that I have followed for the last ten years that has proven very successful. I had only four swarms this season out of forty colonies. Some colonies will swarm, regardless of what is done to prevent it. I can prevent swarming by cutting the queen-cells; but every beekeeper knows that this is a very troublesome job.

I control swarming by giving plenty of ventilation to the bees. It is useless to give plenty of supers unless there is also plenty of air. I use the eight-frame dovetailed hive; and before I nail the hive-body together I rip a piece 5 inches wide off the



lower side of one of the end pieces, this end that has been ripped is to be the front of the hive. I then put the hive-body together, leaving the five-inch piece out. I saw the dovetails off the five-inch strip, and fasten

it back in place with two small hinges. This makes a five-inch door the width of the hive, for an entrance door. In hot weather, when my bees begin to get strong in the spring, or at the beginning of the honey-flow, I open this door and turn it back up against the hive. This gives the bees plenty of air. If there is also plenty of super room there will not be one swarm in ten colonies. With this large entrance it is no trouble for the bees to force plenty of air up into the supers where it is needed in hot weather. I have two small buttons on each side of the door to hold it in place when closed for winter.

At the close of the honey-flow in order to prevent robbing I close the door to all hives that are weak and not able to guard so large an entrance; but the doors to all strong colonies are left open until winter. These large entrances keep the bees cool and comfortable during hot weather when no honey is coming in, and when the bees are idle.

I have an Aspinwall hive that has made over 200 lbs. of honey this season. I have had this hive for five years, and the bees have never swarmed; but it is much trouble to take out the dummy frames in the fall and put them back before the honey-flow. During the honey-flow the bees build the comb in the brood-frames clear out even with the edge of the frame; and in the fall, when one takes the dummies out, there is no bee-space left between the frames when crowded up for winter.

The plan I have given, if properly carried out, will nearly do away with swarming. It is the best thing I have found.

Owingsville, Ky., Aug. 18.

THE BEE-SUPPLIES USED IN HOLLAND

BY J. H. J. HAMELBERG

Considering the population of this country, we are well provided with opportunities for buying our bee-supplies; but the supply stores furnish only the hives and fixtures used by the majority of the Holland beekeepers. Those using American hives, as I do, have either to make their own fixtures or order them from the United States, which is rather expensive.

With the exception of hives and their fixtures, honey-jars, and comb foundation, most of the articles sold by our dealers in bee-supplies are of German make, and in general they answer all purposes. I do not consider our hives and fixtures the equal to the American product, for as a rule they

are much frailer and not so well finished. This can be accounted for by the limited trade, which does not permit the use of such expensive machinery as American manufacturers use.

I can not understand why our comb foundation is so inferior, for American machines or the equivalent of American machines are used in its manufacture. The brood foundation here is so thick that only thirteen Danzenbaker frames can be filled from a kilogram (2.2 pounds), and extra-thin foundation suitable for sections is not manufactured in this country at all. Dealers claim that the bees will draw out the wax in this heavy foundation so that they

are saved the necessity of producing so much at a time. In this I do not agree; besides it is a question whether it would not be more profitable to let the bees gather honey and make their own wax for cell-building than to make them spend their time in reducing the sides of the cells of thick foundation. Furthermore, the thick midrib may not be objectionable for brood-comb, but is very bad when used in sections, or even in shallow frames when the honey is to be sold as bulk comb honey. Samples of comb foundation I have had from Germany and Austria are little better than our own product, but still they remain far behind that made in America, and the reason for this I do not understand.

I wish to give some particulars about my own appliances and methods, so far as they differ from those usually described or illustrated in GLEANINGS.

BOTTOM-BOARD.

The end-piece of my bottom-board is not nailed fast but is fastened to the sides with a brass hinge at one end and a hive-clamp at the other. I consider the movable end very convenient because I use shallow tin trays for stimulative feeding; and by throwing open this end-piece the trays may be pushed in from the back and filled readily without disturbing the bees. The robbers are also less of a nuisance than when they can smell the diluted honey at the entrance.

The greatest advantage, however, of the loose end is that it enables me to clean the floor-board in winter without disturbing the bees above. The sides of my bottom-board are about an inch high, and the distance between the floor and the bottom-bars of the brood-frame is $2\frac{1}{2}$ inches, permitting a large scraper to pass freely under them. This scraper is made of a common flat file forged to the dimensions $\frac{1}{8} \times \frac{1}{2} \times 8$ inches, and fitted with a long handle made of stout wire fastened to it in the middle with a screw thread and nut. I push the handle thru the entrance and haul the scraper thru the hive from the back so that all the dirt and dead

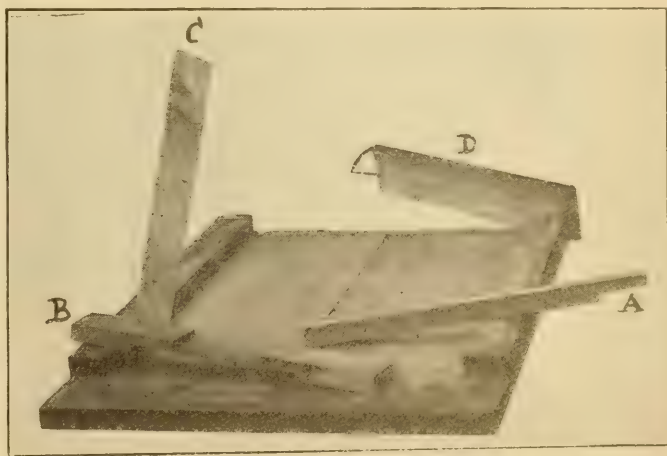
bees will be drawn out in two or three strokes.

By examining the refuse that I pull out I am enabled to know the condition of the colony. If I find it damp, more ventilation is needed at the entrance. A large number of honey crystals or wax grains in the sweepings show that the bees need water. Larvæ of wax-moths indicate the bees have been cleaning out the cells for brood-rearing. Dead bees with extended tongues indicate starvation, while the finding of a dead queen shows me that I have to overhaul the colony as soon as the weather will permit. To make this kind of examination it is necessary, of course, that the floor board be scrupulously clean when preparing the bees for winter in the fall.

I make the end-piece higher than the sides of the bottom-board so that it extends up on the back of the hive.

ENTRANCE-BLOCK.

I make my entrance cleats $1\frac{1}{2}$ inches wide, and take care that they do not fit too tight, else when swollen by the rains I would have too much difficulty in removing them. If necessary I fasten them to one of the sides with a small wedge. These wedges often are handy, as, for instance, in giving a



Hamelberg's hive-bottom. A, entrance cleat for winter. B, entrance cleat for summer. C, galvanized iron piece to close either entrance of B. D, back cleat opened.

little super ventilation or in fastening Alley traps to the entrance.

I have a vertical saw-kerf in the block on either side in which I can slip a strip of galvanized iron. When not in use this strip is simply turned up in a vertical position against the hive so that it will not get lost.

For winter I use special entrance-blocks the same dimensions as the other, but with

an opening of only $\frac{1}{4} \times 2\frac{1}{2}$ inches at one end, so that the entrance will be at the right side of the hive.

HIVE-STANDS.

My hive-stands are like those commonly used in the United States, consisting of four pieces of inch material nailed squarely together. I strengthen these frames, however, by nailing triangular blocks in the corners. I have these stands supported on legs about eight inches long so that I can put my feet underneath. This is very convenient when lifting heavy supers.

Before nailing the hive-stands together I soak all the lumber for twenty-four hours in carbolineum so that the stand will last for years before showing any signs of decay. I can not recommend this disinfectant too highly for all wooden structures that come in direct contact with the soil.

SUPER-COVERS.

My super-covers have a hole in the center to fit the mouth of a common fruit-jar. Besides feeding syrup I also feed rock candy, and the holes in the boards answer very well

for this also. In mild winters, when the bees consume a great deal of stores, I sometimes fear that they have too little to last until spring, then I feed candy cakes made after the recipe in the A B C and X Y Z of Bee Culture.

In January we often have one or two fine days when the thermometer rises above 50 degrees, when the bees have a chance for a cleansing flight. On such occasions I scrape the peat dust (the packing material in the super) to one side, thus uncovering the thin board that rests over the hole in the super-cover above mentioned. Then I can replace the thin board by a cake of candy (about 6 pounds) which I cover with a piece of burlap and scrape the peat dust back over it. This takes less time than to tell about it, and the bees are very little disturbed.

A further advantage of the holes in the boards is that they enable me to take a hasty glance at the interior of the hive at times when it is too cold to overhaul the brood-nest.

Soest, Holland.

SANITARY CONDITIONS IN THE BEEYARD

BY J. E. JORDAN

* Much of the bee disease of today is spread by the unsanitary conditions tolerated by beekeepers. Many give the matter no thought whatever; some know just enough about bees to take the honey from them, and do not think that there is any more to learn. Sanitary conditions are just as important in beekeeping as elsewhere. I think the greatest thing that could happen would be to devote a certain day or week of each year to *cleaning up*, all the beekeepers to get busy on that day.

In getting things sanitary, first look into the location of the apiary. Are the grounds clean? Cleanliness is next to godliness. I have found it best to place the hives so that the sun will shine on them during the whole day. The rays of the sun are known to kill many germs. I do not advocate shade here, as some bees are inclined to be cross in a cool shady place and will not work as early and late as those in the sun. Of course if in a hot climate a little shade during part of the day is desirable.

See that the hives are well up off the ground, so that plenty of air may circulate under them. Never let grass grow so tall in front of the hives that the bees can hardly get in and out. Keep the grass clipped short; and if you haven't time to mow it

yourself, put a few sheep in the apiary and they will keep it short for you.

When examining a colony, and the frames have burr-combs on them filled with honey, do not allow this honey to drip to the ground to attract other bees. Hold the dripping frame over the hive so that the bees of that hive will take care of it. If you wish to scrape or cut off the burr-combs do not throw them out in the yard. Put them in a lard-can fitted with a tight cover. Do not give other bees a chance to get at these wet burr combs, as it will be more than likely to start robbing.

Never leave combs, fixtures, or tools on the floors where people have to walk; for if you have visitors, and they happen to be beekeepers who are careless, germs from diseased honey or combs may be on the soles of their shoes. Shallow steel pans are fine for holding supers or combs; but old newspapers are cheaper and better than the pans, as they can be burned when soiled.

If an inspector comes to your place to examine your bees, have him wash and disinfect his hands and tools before beginning his work. Have this done in your presence—do not take his word for it. A good many inspectors obtain their positions thru

political pull, and know very little about bees. These are more likely to scatter the disease than to clean it up. There are many fine inspectors who are doing a world of good, and who are experts in their line; but for fear that one of the careless kind may happen along I have given this word of caution. We want good inspectors; so when you find one who is not doing the work properly, report the matter at once.

Shippers of extracted honey in barrels should see that these barrels are perfectly tight and that no honey adheres to the outside. Leaky barrels are very dangerous, as the car in which they are being

shipped may be put on a siding and remain for days, allowing bees in the vicinity to rob the honey. This also happens on the platforms of stations and in the wagons which carry the honey from the station. I believe that if a national law could be passed to prohibit the use of barrels in shipping extracted honey we should be able to keep our bees in a better condition. Nothing but *tight tin cans* should be used. It would be a good plan to have extra outer cases for section honey, to catch the drip should a section get smashed.

Morgan, Ky.

COUNTING THE COST OF SUGAR

BY JOSEPH GRAY

We never feed in this locality. The discussion regarding the feeding of sugar is of vast importance. Let me take J. L. Byer's statement, page 1016, Nov. 1, "with a good flow from buckwheat, say 40 to 60 lbs., even the Jumbo hives will need feeding after supers are off." Buckwheat honey is a poorer grade than clover. Figure the cost of taking off that honey and marketing it. Again, figure the price of sugar, and freight on the same—labor of making into syrup, and time occupied in feeding.

We leave sufficient honey to carry the apiary thru. When we get to our last extracting we estimate by previous experience how much will be needed. If we decide it is necessary to leave four full combs in the super, four are left; or if it is a question of apiaries, possibly four out of ten apiaries are not extracted the last time.

We motor to a yard; and with a long box holding 40 combs we pick up full combs and

replace with empties. We next go to a yard needing feed. The hives are hefted, and those needing stores are fed by exchanging full combs for empties. If necessary to go below we do so, and a bucket of mud is used to close the joint between the brood-nest and super and *destroy the scent*. A sharp eye is kept for robbers, and every caution taken to insure against them. On some days we can work right along; on another day it will not be two hours before it is necessary to stop. Sometimes we can work well part of the day, and during the rest of the day be unable to touch a hive. Much depends on the bees. With an auto, if we can work only half an hour at one apiary we close up and motor to the next.

I think if some of the beekeepers will stop to figure out the cost between a low-grade honey and a feed-bill they will be likely to cut out the latter.

Heber, Cal.

LAWS TOO DRASTIC COULD NOT BE ENFORCED

BY HARRY LATHROP

In the June first issue, page 425, appears an editorial, "Legislation too Drastic." I wish heartily to second this. Relative to laws regarding the sale of honey from apiaries in which American foul brood exists, I once asked in our Wisconsin convention what a beekeeper would do with a crop of forty thousand pounds of nice extracted honey if the discovery should be made before marketing that foul brood actually existed in the yard. The only answer to such a question is, "Sell it." There is no other common-sense answer. Much of the

extracted honey placed on the market in certain parts of the West and of the East during the past ten years has been produced in yards where foul brood existed. Foul brood in the brood-chambers does not affect the purity, for food purposes, of honey produced over queen-excluders, and no chemist on earth could tell which is so produced and which is not.

I have had opportunity to observe American foul brood closely for a number of years, altho I think my apiary is now free from it. The disease is not very contagious

unless the hives are so neglected that bees from healthy colonies are allowed to rob weak or dead foul-broody colonies. Honey from the extracting-supers will seldom propagate the trouble. Extracting combs cleaned up by the bees and placed away dry will not cause foul brood thereafter. Hive-bodies that are perfectly dry and clean will not spread the disease if used for clean stock. Frames from which the comb has been boiled in a melting-vat are safe to use again, and need not be destroyed.

American foul brood need not discourage any one who attends properly to the bees. It will ruin a neglected apiary if time enough is allowed.

The wintering problem is the question of greatest importance with us. Dysentery will destroy more bees than foul brood on the average. It reduced an apiary of 140 colonies to one of 30 for me in one winter. Foul brood never was that bad in my experience. So far as legislation is concerned, it would be an easy matter for an official to forbid a beekeeper to sell a nice crop of honey that had been produced in an infected apiary; but if the official should happen to discover it in his own yard the case would look different. Laws not founded on common sense will not be enforced in this country.

Bridgeport, Wis.

THE REASON FOR THE DRONE-LAYING QUEENS

BY A. C. AMES

On my inspection trips among beekeepers over the state I find some complaint in regard to queens purchased from queen-breeders, turning out to be drone-layers. The complaints have been directed against men whom I am personally acquainted with, and whom I know to be among our very best queen-breeders. It is possible for a well-meaning queen-breeder to send out unintentionally a drone-laying queen as an untested queen.

To illustrate: I wish to describe a case that occurred in my home yard this season.

I had produced a batch of fine cells and used one to requeen a colony that had a failing queen. In due time the cell hatched, and on one of my visits home some three weeks later I found the queen to be laying; and as she was a very fine-appearing queen I took it for granted that *that* colony was in good condition or soon would be. On account of being away from home almost continuously I am sometimes unable to give my bees the attention they should have.

On my last visit home (Sept. 22) I



Home of O. B. Griffin, Caribou, Me.

noticed from an entrance examination that that colony did not appear very strong, and that the bees flying were all old ones. I examined the colony and found the greatest amount of drone brood I ever saw in one colony, without a cell of worker brood. I am certain that that queen never mated, and, as a result, never produced a worker bee. Judging from appearance alone one would consider that queen very good. She must have been confined to the hive by bad weather. I examined her for a defective wing, but the wings seemed normal.

The past summer has been for the most part rainy and cold, and there is probably more of this kind of trouble than usual.

Peninsula, Ohio.

BEES IN A SOLID MASS SIX FEET HIGH

BY O. B. GRIFFIN

The picture shows the largest swarm of bees I ever took down. This swarm was hived in July, 1915, and consisted of six or more swarms all in one cluster. From the ground to the highest point it was 6 feet 4 inches in length. The extreme width was 4 feet 2 inches. Where the cluster was solid it measured three feet thru, altho the smallest diameter was only $4\frac{1}{2}$ inches at the ground. It was certainly a magnificent sight to one who loves bees. I divided the swarm and hived the divisions, but they



A mammoth cluster of bees, six feet high, made up of six swarms that settled together.

made quite a bit of trouble before they were settled to stay.

Caribou, Me.

IS IT BEST TO HAVE ONE DOMINANT RACE OF BEES ONLY?

BY T. T. TAYLOR

There have been frequent discussions regarding black bees versus Italians. In the March 1st issue for last year the editor says that the blacks seem to be the dominant or persistent variety. This suggests to me that a wider and more important question can be raised here than that of whether the black or the Italian bee is the better. This question is: Is it desirable to have a number of varieties and hybrids, as at present, in any country, or only one dominant variety? This is not a question for beekeepers of the United States only; it is a question which, I think, should be considered by beekeepers of all countries where there is more than one variety. In fact, I think this question pertains more to other countries than to the United States, where the Italian bee is so popular, tho apparently not the dominant one. I will put my

arguments in favor of this question in a few numbered paragraphs which, I think, involve more or less the conclusion which I draw from them—namely, that it is best to have only one dominant variety in certain countries if not in all.

1. The aim of beekeeping is predominantly an economic one. It is the gathering of honey, a food which is otherwise going to waste, in the largest quantity and with the least effort. In other words, the predominant aim is monetary profit. Personal pleasure, hobby, or the color of the bee, are but secondary considerations.

2. If all the varieties of bees in a country were left to interbreed and compete, a single variety would in most cases, if not in all, be produced which we should call a dominant variety because of its being a resultant survival of all the others. Only

one variety, the best, all things considered, is required. Such a dominant variety would tend to become fixed in its characteristics; but it would always be capable of very considerable gradual and permanent improvement by elimination and selection.

3. Tho there is much difference between the different varieties in honey-gathering, swarming, disposition, etc., there is not so much difference between the economic results of that which we may call the dominant variety of certain countries, and the best imported variety or improved strain. We are, perhaps, as likely or more likely to obtain a better bee by consistently improving the dominant variety than by improving any other variety or by producing hybrids.

4. Bees differ from other domestic live stock, such as cattle, in that we cannot control their mating and breeding to the extent that would enable us to maintain a non-dominant variety as our sole variety. That is, so long as we continue to breed non-dominant varieties we must always expect to have along with them numerous mongrels of undesirable quality; whereas if we breed only one dominant variety we should be practically free from such mongrels. The maintenance of the queens of an apiary will, on the present system of cross-breeding, always be a more or less troublesome and costly item; and it is desirable that this cost and effort should be reduced, as it could be if we had only one variety.

5. There may be said to be three methods of improving the bee as of improving plant and animal life generally; namely, by elimination, selection, and hybridization. The hybridization method breaks up the hereditary constitution of the organism so much that we lose one good point while breeding for another. Thus improvements made by the hybridization method are not easily fixed but are easily lost. The hybridization method is unnatural and undesirable except as a means of inducing slight variations to work upon when the stock is too fixed. The eliminative method is slow but sure; the selective method is quicker but less sure. The eliminative method is a safe one because it is comparatively easy to judge what a defect is, and the rest is left to nature. The selective method is not so safe, because, while one may judge a good quality, such as honey-gathering, there are other qualities which may go along with it, such as a tendency to disease, that are not so easily judged. Thus in breeding from one parent on the strength of one or more selected good qualities, we may carry

forward, quite as extensively, a bad quality that is either unrecognizable or ignored. In the method of elimination we rear our future stock from a large quantity of individuals having very numerous points which are intermixed by cross-fertilization; whereas in the method of selection we rear our future stock from comparatively few individuals which may not contain all those points which it is desirable to carry forward. Suppose, for sake of argument, 100 queens of one variety, but each having slight differences of quality. If we eliminate 10 defectives we rear from and carry forward the points of all or some of the remaining 90. If, on the other hand, we rear from two individuals selected for desired points, we leave behind the various points of the remaining 98, and at the same time lose, to a great extent, the assumed advantages of varied cross-fertilization in maintaining vigor. The method of elimination can be and should be carried out by every beekeeper; but the method of selection may be of doubtful future benefit, even when carried out by an expert. In the elimination method we co-operate with nature; but in the selection method we may be fighting against nature. Therefore elimination, the primary method of nature, is still the primary method by which man can adapt domestic organic life to his requirements; and selection, tho more rapid, should be used only in moderation, and subordinated to elimination, for fear of specializing in defects, and inbreeding; while hybridization should be regarded as a dangerous method to be used only occasionally, and in such a way as not to break up the hereditary constitution of the organism.

I do not expect that all the arguments in the foregoing five paragraphs will be accepted. I do not say that I accept them all myself without qualification or further consideration. But considering the argument generally—namely, that the aim of beekeeping is mainly economic; that nature has a tendency to produce one variety in a country; that one variety is sufficient; that there is little difference in the economic results of any of the varieties; that the breeding of bees cannot be completely and continuously controlled by man, and that some of the present methods of breeding are unnatural, and unlikely to result in permanent improvement without accompanying weaknesses, I am inclined to draw the conclusion from them that it would be much better for the present and future of beekeeping, in some countries at least, if beekeepers were to co-operate in improving

that variety of bee which is found to be the dominant one of their respective countries. I think that, in the case of some countries, if only a fraction of the effort that has been expended on importing, producing, and maintaining non-dominant varieties had been applied to the gradual improvement of the dominant variety, greater progress would have been made than has been made in those countries up to the present time.

But this question is not only one of improving the bee, and, thereby, beekeeping; it is one, perhaps, of saving beekeeping from partial disaster. Many plants and animals are now more subject to disease than their less cultivated progenitors were. Why is this? It is not a condition that we should regard as unavoidable in the culture of plants and animals. I think it is due to carelessness in not letting nature have more of her own way. That is, it is due to an insufficient application of the slow and natural method of elimination, to too much selective propagation and inbreeding, and to a mistaken degree of hy-

bridization, thereby breaking up the hereditary constitution of the organism. So it may be in regard to bees. Many beekeepers in the British Isles would give up all thought of improved strains if only they could get a bee that would live at all. It is probable that the reason why Isle of Wight disease is so bad here is that the dominant race has been thus broken up by intercrossing with foreign varieties, thus producing hybrids and mongrels of weak constitution which cannot resist what is, perhaps, only an old-standing bee-disease.

If this policy, which we may call the dominant bee policy, is correct, how can it be carried out? It can be only partly done by legislation prohibiting the importation of bees; for no doubt selected non-dominant strains could be maintained in some countries indefinitely, tho the number of such strains would certainly be reduced. In addition to legislation it would be necessary for beekeepers to co-operate thru their associations in cultivating and improving the dominant variety only.

Acacia House, Beverley, England.

MICHIGAN STATE BEEKEEPERS' CONVENTION

BY E. R. ROOT

It is impossible to give a detailed report of this convention, on account of the limit of our space; and we can do little more, therefore, than give some of the important points brought out in the discussions.

Mr. David Running, one of the best beekeepers in the state and in the United States, made a most excellent presiding officer. He not only understood the fine points of discussion but took particular pains to draw them out. In some cases he kept the speaker upon the platform, after delivering his address, so that those who desired to do so could ask him questions. This feature, apparently original with Mr. Running, added no little to the value of the address, and at the same time drew out points overlooked or not thoroly understood. The general character of the papers was of the very best, and credit is due to Sec. F. Erie Millen for the excellent program which he prepared.

HOW MUCH MORE COMB THAN OF EXTRACTED CAN BE PRODUCED?

Some of the beekeepers held that they could produce a half more of extracted—some nearly twice as much. The question received more than ordinary attention for the reason that extracted honey appears to be going up while comb honey is going

down. Whether one could afford to produce comb honey in view of the rising prices of extracted was a fair question to ask. The general feeling seemed to be that both comb and extracted should be produced, but more of the latter, as it is not wise to put all our eggs in one basket. Moreover, there are some colonies that do better for extracted, and others better for comb.

STRONG OR MEDIUM COLONIES FOR THE PRODUCTION OF COMB HONEY.

Practically all of those present taking part in the discussion agreed that the strongest colonies in the spring are not necessarily the best for the production of comb honey, for the reason that they are inclined to swarm before the actual honey-producing season comes on. On the other hand, medium-strength colonies are at about the right strength by the time the honey-flow opens up, and are, therefore, less inclined to swarm.

COMB HONEY WITHOUT SWARMING.

Mrs. Wilber Frye, of Sand Lake, Michigan, was pronounced by Pres. Running one of the most successful comb-honey producers in the state. She was called to the platform and asked to give her method of producing honey. It will not be possible

or necessary to give here the full details, because we have asked her to prepare an article for GLEANINGS, telling just how she proceeds. But for the present, at least, we may say that she produces comb honey by dequeening her colonies, then cutting out cells nine days afterward. In answer to repeated questions she said that she could not discover that the queenless colonies were much inferior to those operated by other methods and with queens. She has worked out a system of dequeening colonies for the production of comb honey that seems to give remarkable results in her locality and with her management. She and another woman do all the work, running a series of outyards, producing very fine comb honey, and that, too, without any swarming.

DIFFERENCE IN COLONIES IN THE PRODUCTION OF COMB HONEY.

It was clearly shown thruout the discussion that there is quite a difference between different colonies in the production of comb honey. Some that are well adapted for extracted are not fitted at all for comb. Colonies that produce dark-colored cappings, or are inclined to swarm, should be run for extracted. Those that show the best results in previous years in the production of comb should be selected for comb honey.

In this connection the color of the cappings received considerable consideration. Some argued that the dark cappings are caused by too little ventilation. Others held that the strain of bees and the season have something to do with it. It was stated that a slow flow causes darker-looking comb honey than where the nectar comes in rapidly.

EFFICIENT BEEKEEPING.

This question was handled in a masterly manner by Mr. E. S. Miller, of Valparaiso, Indiana. Mr. Miller called attention to the wasteful methods employed by many beekeepers, and he explained how, by the use of proper tools and equipment, with the right kind of planning one may very greatly increase the crops with the same labor. He mentioned a case particularly of one beekeeper who was kept busy thruout the season taking care of 60 colonies, while another, his successor, took care of 400 colonies in the same locality, with an expenditure of time equivalent to only two days in the week, the rest of the time being devoted to another business. This called forth a lively challenge from several, and then it developed that Mr. Miller was the man who was able to accomplish the feat. Mr. Miller is manager of a local telephone

company, and is not only a trained business man but a good beekeeper. Just how he is able to accomplish so much work with so little labor he will explain later on in GLEANINGS. When the question was raised whether it was possible for him in so small an allotment of time to do good work among so many colonies, a neighbor of his, Mr. Bull, said he actually knew that he did do it.

CHOOSING A LOCATION.

This was admirably handled by Ira D. Bartlett, of East Jordan, Mich. In the order of their importance he puts the man first, location second, equipment third. The locality and the man must work together. The flora is of paramount importance. It is desirable to have a succession of honey-producing plants to build up the bees in the spring, to provide good forage in the height of the season when the main crop is secured, and a fall flow if possible to put the bees in proper condition for winter. A protected spot in the locality is essential. He would have woods or shrubbery around the apiary, not only to protect the bees but to give them an opportunity to get out in early spring to get pollen. Proximity to water is important, but he avoids putting the yards in a low damp place. If possible the locality should be where there are good roads, churches, and schools. He does not place the bees too near a lake or stream. Many bees are lost by dropping on the surface of the water.

A southeast or southern slope is best. The apiary should be placed on the upper part and the honey-house and buildings on the lower. Mr. Bartlett places the hives in long rows for convenience in shoving a wheelbarrow from one hive to another when loading on supers. When asked whether bees placed in long rows do not drift more or less he admitted that this might be true, but his hives are far enough apart (ten feet) so that it does not cause any trouble.

A SCHEME FOR EQUALIZING COLONIES.

Mr. Bartlett then went on to tell how he had equalized his colonies one season by putting a weak one in place of the strong, causing the flying bees of the strong to join the weak. He admitted that this required a great deal of care to prevent some brood from being neglected in the stronger colony; but he never made it a practice to equalize them except in warm or hot weather.

This brought out considerable discussion, but thru it all Mr. Bartlett held his point well. We have asked him to describe

his methods more in detail. He is a busy man; but if we can get him to write we know our readers will be pleased with what he has to say.

THE SALE OF HONEY.

This question was handled by Mr. E. D. Townsend. While he admitted that honey could be sold by the producer to the jobber, yet the objection to this method is that it has to go thru two or three hands before it reaches the consumer. He rather favored selling to the consumer direct. He puts up his honey in friction-top pails, five and ten pound sizes, the former selling for 85 cts. and the latter for \$1.60. If one sells the honey at wholesale he should sell to the one who sells to the consumer.

Mr. Townsend was asked whether he was a friend of the grocer when he sold his honey in pails from house to house. He replied by saying that the grocer does not object if producers do not undersell him. Then the question was asked whether, at the present price of extracted honey at wholesale or jobbing, a retail price of \$1.60 for a ten-pound pail, pail thrown in, is not too low. At this point Mr. R. F. Holtermann, of Brantford, Ontario, made the statement that many beekeepers are not business men; that too many of them retail and wholesale honey at a time when the difference between wholesale and retail is often very small—so little, indeed, that the wholesaler has no encouragement in buying honey to sell again. He believes that one should sell to the jobber at jobbing prices, to the wholesaler at wholesale prices, and to the retailer at retail. When asked how much honey he produced, Mr. Holtermann stated that his crop last year was five car-loads, and that he sold thirteen more. He sells only to the jobbers—not to the retail trade.

After Mr. Holtermann had closed there were two or three who took exceptions to his statement that the average beekeeper is not a business man. But Mr. Holtermann hung to his ground. He considers the middleman a blessing in disguise, not "a necessary evil."

Mr. J. F. Moore, a large honey-producer in Ohio, felt that there should be no clash between the two systems of selling. At this point, Mrs. Wilber Frye, of Sand Lake, Michigan, stated that, while she formerly sold her comb honey at 12 cts., she now sells to the jobber at 13½, the jobber taking the entire crop off her hands and paying cash.

Every now and then a joke was fired at Mr. Holtermann for saying that the average beekeeper is not a business man.

SUCCESSFUL FEEDING IN A CELLAR.

While it is usually regarded as bad practice to feed in a cellar, yet Mr. Leonard Griggs, of Flint, Michigan, successfully fed 58 colonies three days after he put them in the cellar, and they all came out in fine condition in the spring. The cellar is first warmed up with an oil-stove, so it is about the temperature of a living-room. He takes ordinary ten-pound pails, punches small holes in the top, fills them with a thick syrup, and gives the syrup (hot) to the bees on top of the brood-nest. The syrup is all taken down in two or three days, and then the feeders are taken off.

THE POSSIBILITIES OF THE COMBLESS PACKAGE.

This was discussed by A. G. Woodman, of Grand Rapids. He has had very satisfactory results getting bees from the South early in the spring, and has almost come to believe that a beekeeper could afford to let his bees die after securing the main crop, sell the honey, and then buy bees in combless packages early in the spring to fill up his hives. Three pounds of bees in a hive by the first of May give a nice start; and the rapidity with which the queen lays in these combs soon builds up a good colony. In a good season a pound of bees pays for itself well. The feasibility of the pound-package business depends somewhat upon the price at which the bees can be delivered in the northern states. Mr. Woodman thinks that \$3.00 for three pounds of bees and a queen is a fair price; and if they can be secured at these figures one ought to make a fairly good return on the investment.

While in Canada a few days ago we ran across a beekeeper who from eighteen 1-lb. packages of bees and a queen secured 1800 pounds of honey, and 18 colonies fit for wintering packed outdoors. While this was quite a remarkable record we heard of a number of instances at the Michigan convention where others had done quite as well.

PROTECTING COMBS FROM THE MOTH-MILLER.

One of the questions from the question-box was what to do with wet extracting-combs just from the extractor. President Running made the suggestion that they be placed in a cool cellar. The temperature of the cellar he said is too cold for the eggs of the moth-miller to develop; that as soon as cold weather comes on, if the combs are taken out a freezing kills the eggs. This is quite a valuable point that many beekeepers would do well to consider.

On the evening of the second day a

banquet was served by The A. I. Root Company, of Medina, Ohio, and M. H. Hunt & Son, of Lansing, Michigan. This was served at the Baptist church. About 150 were present. Among those who responded to toasts were President Francis Jager, Chief of the Division of Bee Cul-

ture, Department of Agriculture, University of Minnesota, St. Paul; Mr. F. Eric Millen, formerly foul-brood inspector for Michigan; Mr. B. F. Kindig, and Mr. Morris.

Numerous prizes were offered for best displays of honey. At this writing we have not received a list of the winners.

LETTING THE BEES FASTEN THE FOUNDATION

BY M. JOHNSTONE

Enclosed find an illustration of a method of fastening full sheets of foundation without using the groove or wedge. The method permits the use of a shallow top-bar. This is experiment number twelve, issued by the Apicultural Department of the Ontario Agricultural College, and originates with Professor Pettit.

As seen in the illustration the wiring differs from the ordinary in that the top wire is comparatively close to the top-bar (one-half inch), and is fastened in the center of the top-bar by a small staple. The wire otherwise is used as in the ordinary method with the precaution that it must be drawn tight.

The foundation is placed in position on a board the size of the inside dimension of the frame used. The wired frame is then laid on top, the sheet of foundation being pressed firmly against the top-bar; and while in this position it is imbedded firmly.

For some time I have felt the inconvenience of the wedge-and-groove system for extracted honey. The wedges are difficult to drive in firmly, and the sheet of foundation is likely to buckle in putting in the

groove, especially when one is hurried so that it is a relief to turn to this method and fasten so firmly and neatly. Of course the bees do the fastening, perfect combs being obtained in the brood-chamber as well as in the supers. These were obtained the last season in a good flow, which likely would be one requirement.



The method has an added advantage in that broken combs may be replaced without the necessity of digging out the grooves or removing the wedge. The shallow frame also gives the use of two more rows of cells ordinarily occupied by the deeper bar.

Cayuga, Ont.

STATISTICS FOR ONTARIO

BY J. L. BYER

In an article in a recent issue of the *American Bee Journal* Mr. Geo. Kingsmill, of Guelph, gives some startling figures as to the honey production of Ontario this past season. He states it is estimated that there are 10,000 beekeepers in Ontario keeping an average of 30 colonies each—a grand total of 300,000 colonies. With this year's estimated average of 89.6 pounds per colony, that would mean 25,880,000 pounds of honey—I figure it out at 26,880,000 pounds; but a million is not much one way or the other in dealing with figures of this magnitude. He goes on to say that it would take between eight and nine trains

of 50 or 60 cars each to carry the crop if all were marketed. Here I again figure that, counting cars of 25,000 pounds each, it would take 1075 cars to hold the honey, and that would take about 20 trains, each of 50 cars, to handle the product.

But my purpose in making these comments on friend Kingsmill's article was not primarily to try to "figure" differently, but to confess honestly that I was amazed at the magnitude of honey production in Ontario, assuming that the figures are anywhere near correct. Personally I think the estimate too high; for among thousands and thousands of colonies not reported, but

"estimated," I have an idea that the average would be away below the 89.6 pounds mentioned. I base these opinions from conditions locally; for while the crop was extra good here this year in our county, yet I know of many neglected lots of bees that produced practically nothing in the way of surplus. But making allowance for a great falling-off in the estimate, the fact is apparent that there was "some honey" produced in Ontario this year—no mistake about that. Bear in mind that the figures are for Ontario alone. The maritime provinces produce quite a lot of honey, and Quebec still more if I am correct. The western provinces also produce quite a quantity—this year the crop was good in parts of British Columbia and other western provinces as well. A lot of honey is imported from the British West Indies each year—largely by the baking establish-

ments. Summing all together, an enormous amount of honey will be used in Canada this year, as practically none is exported. Considering the population of Canada, I wonder if we are not entitled to be classed as being among the greatest honey-eating nations of the earth. Many beekeepers, and the writer is among them, feel that but for abnormal conditions this year caused by the war, poor fruit crops, etc., the market would have tumbled—in other words, the supply would have more than equaled the demand. As it is, honey is practically the same price as before the war, while many—in fact most—other foodstuffs have advanced from 20 to 100 per cent or more. Under present conditions this year, honey is being used extensively in hundreds of homes that previously hardly knew the taste of it, so the advertising we are obtaining should be worth something.

WHEN JOHNNIE COMES CALLING

BY FLORENCE B. RICHARDSON

"Johnnie" is an ex-circus clown who came to this "neck of the woods" a few years ago with the avowed intention of "showin' these fellers how to keep bees!" He came well prepared with his beautifully made and ornamented *box* hives, painted a lovely shade of some bright color. Green is his favorite at present—a real green, too.

The first real shock to his enterprise came when the county bee inspector warned him to put his little pets into movable-frame hives and gave him ten days in which to do so. Mad? Why, he is said to have buzzed about like a hornet whose nest has been destroyed; but he obeyed orders, much to his chagrin, altho he had to hire the inspector to do the transferring for him, as he had no idea of the method of procedure.

Johnnie came to call on me, not knowing that I knew anything about bees, and in his inimitable way proceeded to introduce me to the first principles of beekeeping, when he caught sight in the back yard of a box hive I had just bought and hadn't had time to transfer.

He began by saying, "Great country fer bees;" and when I agreed with him he continued, "Know much about 'em?"

I admitted not knowing it all, and then Johnnie launched out on his hobby. He looks funny while talking earnestly, and any one would know by just a glance at his queer little face that his idea is to help and not alone to appease his vanity.

"Tell ye one thing;" and the stubby first finger of his right hand beat time to each word in the palm of his left; "ye'll haf to move them bees outer them boxes, and do it *pronto* or thet bee feller will make ye do it!"

With this information he looked up at me very knowingly, and slowly winked one eye.

"Yes, Johnnie," I told him, "I'm going to do that very thing just as soon as I can get over to town to get a smoker."

"No need to go to town a-tall," he answered; "got a puffektly good smoker down to my place, and yer jest as welcome as ye can be."

"Well," I said, "I've also got to get some frames wired," and—I got no further, for Johnnie broke in with a snort:

"Now, ma'am, don't ye go gittin' foolish like thet! Why, them wires is the worst things ye can put inter hive. They jest plays all kinds of tricks, and they'll make ye all kinds of trouble."

"But why?" I asked. "Every one who keeps lots of bees in the East wires the frames and there is no trouble."

"Well, now ye've *hit* it. East is East, and California is California. Now," with a knowing twinkle, "I tried thet wirin' business once, and I *know* what I'm a-sayin'. Why, I had the combs melt right down jest 'cause them tormented wires got so hot!"

"But, Johnnie," I protested, "how do



Fifty-first convention of the Michigan Beekeepers' Association, held in Grand Rapids Nov. 29 and Dec. 1. See report pages 1173-1176.

you know it was the wires that melted your combs?"

"How did I know? Well, what else could he have done it? Never had no others melt, and you know 'swell' as I do that them wires attracts heat!" This was said with a finality that brooked no dispute.

"But how can honey be extracted from frames that are not wired?" I asked, wondering what possible reason he could offer; and it was a typically Johnnie remark, given with a grin which showed the absence of a couple of front teeth.

"Well, ma'am, I'll tell ye. I ain't never done no extractin'; comb honey's good 'nuff fer me!"

I must have looked either convinced or beaten, to judge by the smirk of self-satisfaction he gave me.

This was my first lesson from Johnnie, but not the last. His smoker talk was to me a keen bit of enjoyment, altho this day he doesn't know it, and I hope he'll never find out!

"Now, ma'am," Johnnie's usual approach, "never try to light that smoker frum th' top, fer she jest won't ketch, and

ye'll fiddle away a hull forenoon, may be, 'fore she gits agoin'."

"No, Johnnie," I said, "I always——" I had forgotten for the moment that I knew nothing. "I'll try it from the bottom;" and to bear out my statement I tried to insert a match in the air-hole at the base.

"Here! here!" he cried in alarm; "ye'll spoil that whole contraption if ye do that. Them smokers is funny things—jess like my ole mule, contrary as n'thing. Now this thing here," taking hold of the bellows, "fills up with air;" and when I looked innocently up and inquired, "Hot air, Johnnie?" he answered:

"Oh! no, ma'am, any kind of air," altho he is not usually slow at a joke. When he is giving instructions, however, he is too much in earnest to pay any attention to such feeble attempts as this.

He continued, "Well, ye pull them sides together this way, and it blows air inter the can part; and ye see if ye light her from the top all yer fire goes out the smoot 'stead of lighten' the rest of it. Now I takes a chunk of gunny sack"—who in California would be guilty of saying burlap?—"and I lights

the fringie place on the edge, then drops her in quick and pumps like all Sam Hill on them bellers, and fore ye know it ye've got some smoke."

This whole performance had been acted out for my benefit; and if Johnnie ever made the *hit* as a clown that he made with me I can't understand his escape from the circus manager.

"What's this little jigger on the side of the bellows?" I asked him.

"Oh! that—well, I'll tell ye. I ain't never been able to find no real use fer that. It's always in the way, and I've threatened to take it off, but knew it must've been put on there fer somp'n'."

"Wouldn't it be to bang it up by? Looks to me as tho it might just hang beautifully on the side of a hive."

"By jings! I bet ye've struck it, and here I've ben a bustin' my back reachin' fer the thing when it orter ben right there all the time."

On raising queens and controlling swarming Johnnie has his own ideas—or, rather, he believes in letting "nater" do it for him.

"But, Johnnie," I protested, "you must

lose lots of swarms. You're not always here to see to things, are you?"

"Well, now, I'll tell ye. Sometimes I do lose a swarm; but, Lor' bless ye, what's losin' a swarm to disturbin' the poor critters every few days? and I'll tell ye I don't hev much faith in this business of keepin' bees from swarmin'. 'Cordin' to my notion the more ye fuss with 'em the more they swarm! An' look at that feller over here, fiddlin' away raisin' queens" (contemptuously): "why, they ain't no good after he's raised 'em, fer it's good deal better to let nater raise yer queens 'stead of puttin' in a stranger that may be will be crosser than m—m!"

Johnnie takes off no honey until fall, and then has nothing but section honey, which is so cheap here that it seems a crime to waste the bees' time making it; for wax is as high as it is anywhere, and he could increase his bee income four fold by extracting. Years when other people get a big crop of extracted, Johnnie complains of a poor yield, and shakes his head unbelievably when he hears of some other fellow's big crop.

Hughson, Cal.

Heads of Grain from Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

Jerry Aster thought he was all thru with his extracting for the season till his new truck he had loaded with comb honey got a skiddin' on the asphalt pavement. Jerry says it went around so fast that he not only lost all his cargo but a set of upper teeth besides.

SONNET ON THE PASSING OF A YEAR.

BY GRACE ALLEN

And must we bid you too farewell, dear year,
And see you pass with drooping aged head,
Tho with unhesitating stately tread,
Down long dim paths the timid-hearted fear?
Aye, go you must, you too, however dear,
And pitch your tent among the quiet dead
Of numberless forgotten years that fled
Long since across our world of Now and Here.

Yet not uncomforted we see you pass.

Our hearts have let us know this thing is true;

Tho Time may trail his garments o'er our grass,

The things he claims shall God Himself renew.

And nobler than the old the new shall be,
New years, new faith, new life, eternally.

Western New York Meeting.

The Western New York Honey-producers' Association held its annual meeting at the American Hotel, Akron, Tuesday, Nov. 14. The attendance was large, and the meeting proved the most interesting and profitable in the history of the association. Nov. 14 was known as "Honey day" in Western New York for 1916.

Many new members were enrolled at the meeting, and the association is in a very flourishing condition. According to all reports the honey produced by its members was sold at a good price. There seems to be an increased demand for honey produced in western New York.

Bees are in fair condition for winter, and clover conditions are about 75 per cent.

The morning session, Nov. 14, opened at 10:30. The secretary and treasurer made their reports, and the assemblage then discussed how, when, and where to buy supplies.

At 1:30 the afternoon session was called to order. Discussions of the regulation of field meetings came next, and we voted to make the field meeting a general basket picnic, each member inviting his customers to attend and enjoy a good time. Delegates to the state meeting were then elected.

"Do we co-operate as we should for our mutual benefit?" was the title of an interesting talk by Charles Stewart, of Johnstown, N. Y. Discussions and questions followed.

"Why I Produce Extracted Honey Only" was the title of a subject by J. Roy Lincoln, of Niagara Falls. Jas. Srout, of Gasport, spoke on outdoor wintering, and discussions followed. "Acting as Our Own Commission Man" was the title of a subject by Mr. Meyers, of Ransomville. Mr. J. N. DeMuth, of Pembroke, spoke on queen-rearing nuclei, and also exhibited an outfit. Mr. G. C. Greiner, of La Salle, N. Y., spoke on necessary and unnecessary appliances around the apiary. Mr. Greiner handled this subject in a very satisfactory manner, for he is a man of many years' experience with bees.

The present officers were re-elected for the ensuing year, as follows: President, John N. DeMuth, Pembroke; Vice-president, J. Roy Lincoln, Niagara Falls; Wm. F. Vollmer, Akron, Secretary-Treasurer.

The next field meeting and basket picnic is to be held at the apiary of Vice-president Lincoln, at Niagara Falls. The date will be announced later.

John N. DeMuth.

Then the Moths Can't Get Them.

Mr. Byer's difficulty, p. 1016, Nov. 1, as to saving combs from the moths and still getting the brood-nest in shape for winter without much feeding (some years none) may be met by placing the brood-chamber on top of the super after the main flow is

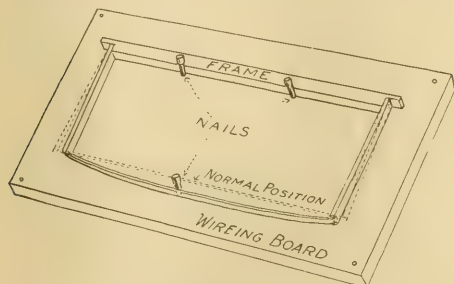
over. This will give the bees room, preserve the combs from moths, and send the fall honey (if it comes) into the brood-nest. If more is gathered than is needed it will be stored in the super below, to be carried up into the brood-nest later on. This is the way I managed 20 years ago. It is some work; but the knowledge that the honey is stored where it is needed, and that your combs are safe, pays for the trouble.

On page 906, Oct. 1, Mrs. Allen speaks of a swarm deserting a shallow hive because the hive was not shaded. Possibly the hive was too small in the judgment of the bees. I wish Mrs. Allen would try putting an empty super under the hive for 24 to 48 hours till the swarm has cooled off, and is down to business.

Toronto, Can., Nov. 10. F. P. Clare.

How I Tighten the Wires.

I read Mr. Niver's description of his plan of wiring frames, page 323, April 15; also a number of similar plans that provide for pushing in the end-bars while wiring to insure tight wires. After trying that plan I found it quite hard to bend the end-bars without injuring the frame.



I use a wide board like a hive cover, and drive two nails to hold the top bar, and then another to spring the bottom-bar down, which causes the wires to be tightened when released.

W. C. Campbell.

Grant City, Mo., April 26.

An Insoluble Whitewash.

Unless it is something old, which I have not chanced to see, the readers of *Gleanings* may be interested in the following clipping from the *Pacific Homestead*. It may be similar to the "powdr paint" which has been mentioned recently.

"In one of the foreign countries a whitewash is used which will not rub off, it being prepared as follows:

"Dissolve two pounds of ordinary glue in seven pints of water; and when all is dissolved add six ounces of bichromate of potassium dissolved in a pint of hot water. Stir the mixture up well, and then add sufficient whiting to make it up to the usual consistency, and apply with a brush in the ordinary manner as quickly as possible. This dries in a very short time, and, by the action of light, becomes converted into a perfectly

insoluble waterproof substance which does not wash off, even with hot water, and at the same time does not give rise to mold growth, as whitewash made up with size often does. It may be colored to any desired shade by the use of a trace of aniline dye or powder coloring, while by the addition of a small amount of calcic sulphite it is antiseptic powder is much increased."

E. L. Sechrist.

Fair Oaks, Cal.

Winter Cases for Seventeen Colonies.

When putting my bees in winter quarters I first filled three long winter cases which hold 17 hives. These have dry, tight, $\frac{3}{4}$ -inch floors, eight inches from the ground. The hives are arranged carefully on these floors, then the entrance "tunnels" are put in place. The sides and ends are set up, hooked securely, and straw and clean chaff closely packed around and above the hives. Lastly the roof is put on and nailed securely. The roof is made of $\frac{3}{4}$ -inch tongued-and-grooved siding or flooring, which is covered with three-ply asbestos roofing nailed on with tin caps and short, heavy nails. These houses are cheap, dry, wind and chill proof, and save wonderfully in stores and winter loss.

The remainder of the colonies are wintered where standing, by first jacketing with heavy, double manilla paper, and lastly with a double roof made of a large piece of asbestos roofing laid loose on top of the hive, and held in place with brick or heavy stones. With plenty of stores in the brood-chamber, and a burlap bag filled with clean chaff in an empty super, the bees winter all right.

B. F. Albaugh.

Covington, Ohio

A Drone-Laying Queen Becomes Fertilized.

Some time in June I had occasion to shake a swarm from a single-story hive; and the combs having a surplus of honey I placed over a weaker colony with an excluder between, intending to use them as an extracting-super. Not giving the colony any attention until the season for extracting arrived I was much surprised to find the queen in the brood-chamber had been superseded, and the only laying queen in the colony had been bred in the super; and having no exit to allow of a mating-flight she was laying eggs producing only drones.

The queen was from my best stock, and I caged her a few days to figure out an opportunity for testing whether a practical plan of having her mated were possible. About the third day after caging I found a nucleus that was suited to make the trial, it having had neither queen, brood, nor eggs, for a week or ten days.

The queen began laying the day after introducing, and her eggs hatched worker brood or bees. None of the brood had emerged from the combs where she had previously laid, so her activity as a layer had not been long continued.

Howardsville, Va.

B. F. Averill.

GLEANINGS FROM QUESTIONINGS

L. P., Ryors, Mo.—When is the best time to sow buckwheat for the bees, and what variety is best?

A. The first week in July is considered the best time to sow buckwheat. The Japanese buckwheat has been preferred for a good many years, altho of late the silverhull has given the best results in honey.

W. J. N., Cleveland, O.—What are the names and addresses of good French, German, and English bee magazines?

A. Schweizerische Bienenzeitung, Editor, Hans Moos, Sonneggstrasse 61, Zurich, Switzerland. German.

Deutsche Imker aus Bohmen, Prague, Bohemia, Austria. German.

British Bee Journal, 23 Bedford St., Strand, London, England.

L'Apiculteur, 28 Rue Serpente, Paris, France.

L. P., Ryors, Mo.—Which is the best method of keeping bees in the summer—under a good shade or in a regular bee-shed?

A. Partial shade is better than either plan. Small grapevines at the south of each hive to afford partial shade during the heat of the day are preferable to anything else, altho the majority who find some shade necessary use shade-boards to prevent the hives from becoming too hot.

W. F. B., Akron, N. Y.—Do black, hybrid, or Italian colonies affected with European foul brood ever rear queens naturally and have the queens mature? If artificial methods of queen-rearing are used, the larvae in the queen-cells usually develop the disease, even if pure Italian stock is used. Is this a rule or an exception?

A. Our Mr. Pritchard says that when he was in Virginia he grafted cells in a colony that was quite badly affected with European foul brood, and he succeeded in raising a part of them. As a matter of fact, it is probable that a larva in a queen-cell has an equal chance with any other larva in the hive. There are always some healthy larvae, even in the last stages of the disease.

A. B. C., Illinois. What are the duties of a bee inspector?

A. A bee inspector should look over every square inch of comb in a hive during the breeding season. There is no use looking at the outside of the hive or smelling at the entrance, because bee disease of no kind can be detected except by opening up the hive and examining every piece of comb therein.

There is not much use in going thru a hive after the breeding season or before it, altho one can detect the scales in combs where American foul brood has been present the previous season.

An ordinary bee inspector will not be able

to cover all the territory. He will not pay so much attention to the hives belonging to the best beekeepers and people who are neat and clean, and who, he has every reason to believe, are watching their own colonies very carefully. It is the small beekeepers, those who do not know bee disease when they see it, those who have had very little experience in the keeping of bees, that are more to be feared than these large producers who would for their own sake keep bee disease well within bounds.

Wherever queens are reared, every inch of combs should be examined at least once in a season, and it is better twice a season. Whether the queen-breeder is a good one or not, it is very important that he should have nothing but clean healthy stock.

C. A. S., Ohio. I am puzzled whether to use double or single walled hives. I propose using single-walled hives, and in the fall contracting down to about six or seven frames and placing these frames in a large colony hive which is on the plan of a double-walled hive, but long enough to hold 40 or 50 frames—seven or eight colonies. Do you think this plan will work if I place light division-boards between them, and have a small bee-entrance for each colony so that on nice days they can fly out?

Is it possible to place a queen on each side of a hive separated by a division-board which allows the workers to go back and forth but not the queen? Is one inch of packing enough for this climate, where the temperature ranges from 60 to 10 below?

A. (By Dr. C. C. Miller.) Others have thought of conserving mutual heat by having a hive wide enough to hold seven or eight colonies for winter, but if any one has made a permanent practice of it I have never heard of it. A serious difficulty in carrying out the plan is that, when the change is made in the fall, many of the bees upon their first flight would not return to their new locations, and there would be the same trouble upon making the change in spring.

It is possible to have a hive with two queens in it, one on each side of a middle partition with excluder zinc in it allowing workers to pass back and forth freely, yet keeping the queens separate. Years ago a good deal was said about a hive of that kind in use in England, but I think nothing is said about it nowadays. There seemed to be a good deal of trouble with one side or another going queenless, and no great advantage over a strong colony with a single queen.

In your climate, with thermometer ranging from 60 above to 10 below, an inch of packing may do for outdoor wintering, but more is likely to be better.

A. I. Root

OUR HOMES

Editor

O foolish people, and without understanding: which have eyes, and see not; which have ears, and hear not.—JEREMIAH 5:21.

And this is the condemnation, that light is come into the world, and men loved darkness rather than light, because their deeds were evil.—JOHN 3:19.

A BEEKEEPER WHO IS A DEAF MUTE.

A few weeks ago I was called for, and found a beekeeper who by his motions signified that he was a deaf mute. He did not seem to be sad nor downhearted, however; and even if he could not hear and talk he was one of the brightest and happiest men (apparently) I ever came across. With a tablet of paper in one hand and a pencil in the other he would write not only so plainly that anybody could read it at a glance, but his hands and face added emphasis to the comical way which he had of expressing himself. He called to invite me to take a trip in his Ford automobile down to the Ohio Experiment Station. I shall have to explain right here that he is the entomologist having care of the shade-trees of the city of Cleveland. He was on his way down to confer with Professor Hauser, Entomologist of the station. Perhaps I had better state right here that his name is Charles R. Neillie. Well, with him in his automobile were his two sons—the oldest one, I think, 17, and the younger one perhaps 5 or 6; and it was really a wonder to see that little chap talk to his father by the use of the deaf-and-dumb alphabet. In riding along he would give his father a punch, and then, pointing to some object, make a lot of signs with his little hands; and several times I was tempted to think that the relations between this father and child were happier and purer than, may be, nine out of ten who have the full use of hearing and speech. The older son acted a good deal as an interpreter along with his father. He has been for some years a newsboy in Cleveland, and has saved up money enough so he will be prepared very soon to take a college course*. They seemed to be well acquainted with the heads of the station, and it was a pleasure to me to see the kind and genial reception the different professors gave him at every turn.

* Once on our trip I noticed the father turned around and made a quick sign with his hand to the older boy, who quickly replied. I was curious enough to know what it was the father signaled. The son replied, "He asked me to listen carefully to see if I could hear any unusual rattle with the automobile." You see if the father himself could not hear, as he was making a pretty good speed, he wanted the benefit of his son's hearing to know if everything about the automobile was all tight and secure.

Well, I have something to tell you still more wonderful yet, several things. First of all, the good mother is *also* a deaf mute, and they have brought up a family of four children; and every one, from the bright little girl only three or four years old, is clear up to date in every line of juvenile progress going on in the world just now.*

My good friend Neillie told me confidentially, but I think he will not object if I tell it here, that his grandfather was an intemperate man and the father followed the grandfather, or was, perhaps, even worse. For this reason friend Neillie is out-and-out *dry*, from the top of his head to the sole of his feet. His three boys, one of them near-maturity, have never tasted any liquor nor tobacco in any form or shape.

By the way, it is a wonderful thing to see a man entirely deaf run an automobile; and you might think it unsafe; but after riding with him over fifty miles I could not feel safer, even at a good high speed, with the majority of chauffeurs who can both hear and talk. At a later date it was my great pleasure to visit the humble home of friend Neillie, at 4317 East 116th St., Cleveland; and their beautiful little garden (containing hives of bees) was one of the finest illustrations of supporting a family on a small area of ground that I have ever met. It was *high-pressure* gardening "with a vengeance." Almost every sort of fruit-tree was found on less than one-fourth of an acre, and the limbs were just bending with beautiful fruit of every description.

As friend Neillie is an entomologist, and has (not at his *tongue's* end but at his fingers' ends) the whole matter of spraying the shade-trees of the city, he certainly ought to know how to spray his garden stuff. Huber and I made our trip to Cleveland in a new sedan Ford. Now, friend Neillie had invited us to look over the children's garden in the city of Cleveland; and he suggested that *he* could run our Ford where he wanted to go easier than he could

* Just think of it, friends. How can a father and mother teach a baby to talk when neither can say a word nor hear one? After the first baby has grown so it can talk, I suppose he might teach the other one. While Mrs. Neillie was showing me thru their little home I looked inquiringly at a sheet of paper fastened to the wall, containing the deaf-and-dumb alphabet. She explained that she kept it there so as to teach the children. Now, try as you may, you cannot in imagination comprehend or realize the tremendous task these two parents have gone thru in building up a home and bringing up four children "in the straight and narrow path" in which they should walk.

direct Huber. Now, please consider. He had never seen an automobile before like this in his life; and altho he is a deaf mute he ran that machine all over the city, dodged vehicles, gave a wave of his hand to policemen everywhere, and did not get into a bit of trouble.

There is a beautiful little periodical published by the Ohio State School for the Deaf, entitled *The Ohio Chronicle*. It is in its 44th year. Well, now, in this periodical I find an article written by Mrs. Neillie, that I am going to copy. It ought to prove not only a rebuke, but an inspiration to millions of people who can hear and talk. May God bless the message that it is my pleasure to give from my good friend Mrs. Neillie.

HOW WE GOT OUR HOME

MRS. NEILLIE'S INTERESTING STORY SHOWS HOW ANY ONE WHO WILLS TO OWN A HOME CAN DO SO—THE EFFORTS GIVE A GREAT DEAL OF PLEASURE AND FINAL HAPPINESS—ONLY ABOUT THIRTEEN YEARS WERE REQUIRED TO ACQUIRE A COZY MODERN HOME, ALL PAID FOR.

We were married two years when we decided to buy a home. We had only a very small account in the bank when we started the venture. After looking it up we decided to buy a lot 40 x 200 feet, paying \$25 down and \$5 per month with 6 per cent interest; and we heard of a house for sale, so we decided to take it and move it on our lot, two miles distant. It was a three-room house, and, small as it was, it would be a home for us. "Be it ever so humble, there's no place like home."

We moved into it as soon as it was on the lot, mounted on stilts. The day being Thanksgiving Day, we gave thanks. At the time, my husband was earning only \$1.75 a day, and there were three of us. The factory shut down shortly after we bought the home, and, after a few weeks without work, my husband got work in a tin-mill at \$1.37½ a day. An awful comedown it was to us, so we had to be very frugal.

We decided to get something from the garden. We planted fruit-trees the first year, and had a good garden that helped us out a lot.

We had been in our home just a year, and again it was on Thanksgiving Day that we were discussing how to better ourselves. I had learned the dress-making trade before I was married, and suggested that I put up a sign "Dressmaking." No, Mr. Neillie would not. Just at that minute in stalked Prof. I. F. Patterson, a brother of Miss Nora Patterson, of Columbus, asking Mr. Neillie how he would like to work in the city parks. Of course we were delighted, and gave thanks. It was \$1.50 per day, eight hours work, so it looked good to us.

We were able to keep up the payments on the lot all the time. We borrowed some to pay on the house and for the moving. Then by and by better times came to us; an advance in wages, and we continued to make progress. At times things did not look very encouraging, but a little reflection always showed me that it would be worse paying the same amount for rent, perhaps more. Most of the needed repairs we did ourselves, as we felt we could not afford to hire the work done.

Our trees grew well. We planted grapevines of three different kinds, also berry-bushes, currants, etc., and managed to make use of every foot of land. We kept chickens and bees, and they have always brought us a neat sum.

By and by we got the place paid for, only to venture into another debt to enlarge the home. My

family had increased in size, hence the necessity. We borrowed money from bank at 6 per cent interest, and we were informed we could have the loan for 99 years, and we had to pay interest twice a year.

Would we have the loan for 99 years? Nix! We saw the amount we borrowed would double up in a few years, so we began paying on the loan as soon as we got straightened. There was not quite enough money to get everything done as we wanted, so we let some things go and did all of the interior painting and varnishing ourselves and all small repairs we could, so I got to be a master of saw, hammer, and brush. We built a new coop and out-building—what it is called I don't know, for my husband calls it shop, my boys call it barn, tho we have no horse. To me it should be a storage barn, which, I am proud to say, I helped to build. People gasped seeing me on the roof, putting shingles on, and on ladder painting, and some came to advise that I'd be in the hospital if I worked at that rate. Thank goodness, I have never been there.

Where there is a will there is a way. Any one can own his own home if he has the will, and it helps to teach one to save and make money go the furthest.

Last January we got all clear, and since then we have put in a furnace, cupboard in the pantry, and paid for forty feet of sidewalk that was laid last summer by the city. Furnace and cupboard have been paid for too.

Last summer we had a fine crop from our fruit-trees—four bushels of pears from one young tree, three bushels of plums; there was none to buy for our canning, and we gave quite a lot away. Our grape crop was a sight to behold, so thick with clusters, so any one can imagine how we are enjoying the fruit of our labor, and we are carrying the air of "I am monarch of all I survey" if I do not look beyond the line of the fence-posts.

There are six of us in the family now, the oldest being fourteen years old and youngest three next July. All but one of our children were born in our own home, and all have grown up outside in the yard with the chickens, bees, weeds, and flowers, and they do grow like weeds under these conditions, being outdoors all day except on very bad days, when I have to drag them in. There has been nearly no sickness to speak of, owing to their manner of living outdoors. So just think how nice it is to have a home all paid for while children are small.

My oldest boy goes to high school next fall, and the older the children grow the more they cost; so there is a consolation in the thought we can do well by our children since we already have a home of our own.

All these years I had to be as saving as I could be, and I do all my work and sewing, so my hands are full; but there is a pleasure in that, and it is our aim to keep going up the ladder.

I just wrote this thinking it would help some of the readers wanting to own a home but who are not sure they can do it. May be some will profit by my experience.

MRS. NEILLIE.

After the above was in type I submitted a copy to our friend Neillie, and he gives us some additional facts as follows:

Mrs. Neillie deserves all you said about her and more. She has done all the managing, as I turn over to her my pay envelope, unopened, which has grown from \$1.50 a day to a yearly salary of \$1400. Perhaps I should tell you I have been working for the Forestry Department and Parks 17 years—3 years as gardener and 14 as a tree-warden, and as the city entomologist.

There are 5 children in the family—four boys and a girl. The oldest boy is 18. You never saw him, tho I stopped at your home September 16, when I

was taking him to the Ohio State University in Columbus—Mrs. Neillie and the little girl accompanying us in our machine. Mrs. Root saw him, and said you were away in Springfield. Mrs. N. and I wish to be remembered to Mrs. R. The boy has to earn half his expenses at the University. He is taking the general course at the College of Agriculture.

The big boy who sat with you in the machine on the trip to Wooster is Edison, named after Tom Edison. He will be 15 on the 19th of November, and is heavier than I am. Last night he was making a new wireless instrument-board to replace an old one he made last year. If he has any real aptitude for the study of electricity I think I will notify Mr. Edison that I named a baby after him nearly 15 years ago, and ask that he be taken into his laboratory; otherwise he goes to the Ohio State University. He is now in high school.

There were two other sons in the machine with you—Elmer, 9 years old, who can tell his older brother more about a Ford than they know, and Franklin, 7 years old.

Please tell Huber that we made Columbus in seven hours from Cleveland (actual running time), and that I think I can do it in 6 if not 5½ hours if I have no precious load like wife and children in the car.

The article Mrs. Neillie wrote was written four or five years ago. We swam out of that sea of debt some seven years ago, into it, buying the corner lot next to us.

You seem to think it a bit strange a deaf man can drive a car. There are several of us in this state who do, and one is reported to own and drive a *taxicab* in Toledo. Deaf people have a sort of "sensiometer" which is more developed than with hearing people, and which is *still* more perfectly developed with the blind. We notice any unusual jarring or loose vibration that ordinary people don't notice. The antenna of my "sensiometer" is always "on the job" on my car. I look after my car, keep my sight straight ahead, sparing five per cent of it for rear-sight mirror, and *do not take any chances*, and am all the more careful *because* I am deaf. However, I have "the other fellow" to reckon with, the same as Huber or any one else, and I *may* get hurt yet. I have driven motorcycles between 25,000 and 30,000 miles, and autos over 40,000, and no accidents at all yet.

Oh, yes! we are all happy here. We have books, the yard, the children, the car gives us all the country we can want, and I have a host of intelligent friends all over the city (including the police, to whom I "wave my hands") whom I acquired in the capacity of consulting tree "physician and surgeon," whom the Park Department sends out to advise people who ask for some one to look at their trees and plants. It is generally the cultured people who take enough interest in their plants to send for some one.

My friends number from the secretary of war down to the wives of the Great Lakes sailors.

Mrs. Neillie says I am a garrulous old man, and that I *must stop*; but I hope this letter will prove a little of a diversion for you.

Most fervently imploring God's blessing on you and Mrs. R., and praying that he will spare you to us for a long time yet, I am your friend,

Cleveland, O., Oct. 24. CHAS. R. NEILLIE.

MILK AND HONEY FOR THE GREAT WIDE WORLD.

The following, clipped from the *Cleveland News* of Nov. 7, is about the best write-up for bees and honey from an out-

sider I have ever come across. In fact, some of us veteran beekeepers never knew or thought of some of the things mentioned, especially in the matter of "housekeeping" in the hive, and that the honeybee is a model housekeeper. Just one suggestion: If I am correct, bees do instinctively object to a dirty man; and if I am right about it a man with the fumes of whisky or beer on his breath would be *more* likely to be stung "at sight" than the one who has just come from the stable without being washed up.

D'YOU LIKE HONEY? BY EDNA K. WOOLEY.

The Honey Man sat down beside my desk and smiled at me.

Now, please don't draw any hasty conclusion. I'm calling him the Honey Man simply because he knows all about honey and its makers, the bees.

"Do you know," he began, "that there are never any multi-millionaires among the bees?"

"Indeed?" I politely responded.

"The fact is," he continued, "that the honeybee never reaps the reward of its labors. It's the saddest thing in a bee's life. A bee's life is short at best. It works so hard that its wings soon become frayed and inadequate for long flights. However, the bee works up to the last minute, and is never able to carry its last load of honey home.

"I wish you could see the inside of a beehive and understand it as I do. It's a regular city, with its officials, its sanitary squads, its police—everything about as we have it, only everything is so much better done than we do it. A beehive is the most sanitary spot on earth. Bees can't and won't stand dirt. Put a dirty honeycomb into a hive and in a couple of hours the bees will have that comb clean and actually glistening.

"Every bee has to go thru a course of thoro home and civic training before it is allowed to leave the hive to do outside work. For the first sixteen days of its life the bee does housework, you might say, and tends the babies. At the age of sixteen days it is considered mature and educated, and may go out into the world to live the fuller life."

"Bees are wonderful," I admitted. "I'm happy to say that I'm one of the few people that they don't sting."

The Honey Man laughed gently.

"Now, that is an old idea that ought to be exploded—that bees will sting some folks and not others," he remarked. "The fact is, you can handle bees at certain times and they'll be so busy thinking of something else that they won't sting. For instance, when they swarm they seldom sting.

"Bees distinguish everything according to odor. Possibly one person's odor may be so agreeable to the bees that they let him alone. The bee's sense of smell is so acute that it will scent what is imperceptible to human nostrils. Bees are known to each other by their odor. Every bee has its own colony odor, and no bee will be admitted into a hive unless it has the colony odor of that hive.

"A bee will sting where it is offended by an odor. A man who has been in the stable, we will say, may go direct to the apiary and be stung by the mildest bees there, while the same man, fresh from a bath and wearing clean clothes, could go about unharmed among the most vicious bees in the apiary."

"Tell me something," I asked. "Do the bees really make all the honeycomb, and why is extracted honey cheaper than comb honey?"

"Bees make all the honeycomb," he answered. "A satisfactory substitute has never been found.

You may be sure that you are getting absolutely pure honey when you buy it in the comb.

"In extracted honey there is, of course, a chance for adulteration, and while it may be as pure as comb honey it lacks just a little of the exquisite flower flavor of comb honey.

"Comb honey is more expensive because it takes the bees a long time to make the comb. It is a very expensive product of the bees. They don't like to fill the small frames which we give them, but we have a process by which they are compelled to do so before they pass on to the large permanent combs which they not only fill with honey but in which they raise their families. These large permanent combs are used again and again. When one is filled, a knife made for the purpose slices off the thin sealing of the cells, the comb is put into a machine which whirls it rapidly, and every bit of juice is extracted. Then this comb is returned to the hive.

"People seem to think all honey is a luxury," he went on. "Bulk for bulk, it may be more of a luxury than sugar; but considering how much richer, sweeter, and more digestible it is than sugar or any of the cane syrups, I should say that it would not be found more expensive. It should be used more in cooking. Remember, it's the purest and finest of direct nature products. I should say that of all other natural products it is equalled only in its many virtues by milk.

"Honey is one of the few sweets that is digested the moment it is taken into the stomach. It never sours on the stomach, never causes indigestion. You might say it is really a predigested food. It contains far more energy than sugar. It is an ideal food for old people and children. Our own children have never been given any sweets except honey. They have had free access to it always. The result is that our children have no bad stomachs, no unpleasant breath, and no decayed teeth as the result of eating too much of indigestible sweets.

"Did you ever try honey and milk on your cereal for breakfast?" he asked. "Now, sugar and cream combined may make an acid in the stomach. Honey and cream never do that. Take just about half as much honey as you would take sugar, on your morning cereal; pour over as much milk as you wish, and it's the surest cure I know for that morning grouch!

"Use honey in place of sugar on all fruits served with cream and sugar, and you'll think life is one long poem."

"Could a woman keep bees in a city back yard?" I asked. "I could establish an apiary on the top of the *Leader-News* building and the bees would travel two and three miles to find the honey to bring home," he answered. "It might be rather dark-looking honey, because of all the smoke in Cleveland air, but it would be honey!"

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HIGH-PRESSURE GARDENING

GRAND RAPIDS LETTUCE GROWN UNDER GLASS,
AND WHAT HAS COME OF IT.

During the years since GLEANINGS was started I have exploited so many different things in the line of gardening, etc., that didn't "pan out" I have sometimes wondered why my good friends did not throw it up to me that my hobbies as a rule were, too many of them, "air castles"—German carp, the Gault raspberry, then some great blackberry of which I cannot remember the name, etc. Well, it often transpires that, while these things are a success in some particular locality, they do not succeed everywhere. I can thank the Lord, however, that many of the things I started have resulted in great and important industries. I want to tell you about one of them:

Almost thirty years ago I got a glimpse of the Grand Rapids lettuce grown in Grand Rapids, Mich. It was not called "Grand Rapids" lettuce then, for the world knew nothing about it. Some of our older readers will remember that, after I got just one glimpse of the *Eugene Davis* lettuce-greenhouse, I began bartering for half a pound of the seed which he said he had. First I offered him ten dollars. He shook his head. Then I went on to twenty, thirty, forty, and finally *fifty* dollars. You see I made up my mind that I was going to have that half-pound of seed, even if it cost a *hundred dollars*. He finally said that, if I was deter-

mined to have it, he hadn't the heart to charge more than at the rate of a hundred dollars a pound. Do some of you remember what I did with it? I gave each subscriber of GLEANINGS a little pinch, and went to growing it in my own greenhouse and writing it up with my characteristic enthusiasm. Grand Rapids lettuce is now cataloged by almost every seedsman in the world.

Several times recently I have had intimations from different sources to the effect that there was one particular locality in Ohio where Grand Rapids lettuce-greenhouses covered literally *acres* of land; and on the 13th of November it was my pleasure to get a glimpse of something like *fifty or sixty* acres, covered with glass, expressly for growing Grand Rapids lettuce. One man had about seventeen acres mostly devoted to this industry; but he begged me not to use his name nor locality more than to say Ohio. It would take a book, almost, to tell you what I saw and learned on that visit of two or three hours.

When I first got a glimpse by lantern-light of Eugene Davis' greenhouse filled with luxuriant lettuce I thought it was one of the brightest and most thrilling sights I ever beheld; and what I saw on this day brought back the old fever and enthusiasm. Oh how I did wish I could get down on my knees and help the boys *transplant lettuce*! I suppose, however, my enthusiasm would

not have lasted very long, for my old knees and back would demand straightening up every little while.

Well, a couple of these boys, perhaps twelve or fifteen years old, would plant seedlings so fast that one could hardly see them do it. There was just a quick dab of the finger, and a little morsel of dirt thrown over the roots, and it was done. They did not take any pains to stand the plants straight up. The plant itself lay flat on the ground; but in just a few hours, with the proper heat and moisture, and especially with a little sunlight, they straightened up of themselves. I was told that one of those boys had on a special occasion transplanted 22,000 plants in ten hours. The seedlings are raised in very rich black soil—I should say a mixture of about half muck and half of stable manure.

The sides of the bed were a wooden plank; and on the upper edge of this plank is a long strip of angle iron; and this strip of angle iron forms a track for neat little cars that carry stuff back and forth. In fact, the cars run so easily that one could give them a push and they would go away off in the distance to the end of the greenhouse. Stable manure is used everywhere, almost without stint. It comes by the carload from the large cities; and talking about carloads, our good friend said he handled the lettuce *only* by the carload. My first question was, "Where do the people live who want lettuce all winter long, by the carload after carload?" I suppose it goes mostly to the great cities. You know it has been pretty well demonstrated that *chickens* do not thrive unless they have green food as well as grain. And, by the way, your chickens will soon show you, if they have a chance, that *lettuce* suits them better than any other green food in the world. Well, it seems that people as well as chickens have begun to learn the value of lettuce as a form of green food; and I suppose our doctors will tell you that lettuce is one of the most *wholesome* products of the soil. It is *uncooked food*; and you know a great deal has been said about the importance of having at least a part of every meal uncooked—food straight from the hands of the great Father, without any artificial tinkering.

Overhead heating is used, particularly for growing lettuce; and the most desirable temperature seems to be about 45 at night and 55 in the daytime. The green fly is kept down by means of hydro-cyanic acid; and this reminds me of something. These lettuce-growers, many of them, grow *cucumbers* also. Of course the cucumbers require

a very much higher temperature; and we saw some beautiful cucumbers trained on a wire trellis, in full bloom. For the cucumber-house they have one or two colonies of bees, the number depending on the size of the house; and it was to investigate this part of their business that our party went out on this expedition. Of course there is no need of any *bees* in *lettuce-greenhouses*; but when they fumigate the cucumber-house the bees have to be removed and set out, until every trace of the terribly poisonous gas is gone. The same greenhouses also grow tomatoes largely; and right in the middle of November they are gathering tomatoes grown under glass, and shipping them by the carload. The tomato-houses need no bees. Let us now go back to where I started. When I was scattering Grand Rapids lettuce seed, not only all over our nation but away across the water, little did I know the outcome.

One of the greenhouses we visited, that went away up in the center toward fifty feet in height, and covered an acre of ground, cost something like \$50,000. I do not remember now how much money there is in a carload of lettuce; but it is probably away up. Large numbers of men and boys are employed in this industry, and very likely women and girls also; and they have a comfortable and pleasant place to work all winter long when there are storms and blizzards outside. One reason why I recommended greenhouse work thirty and forty years ago is that it affords such a nice pleasant place for work during stormy weather.

On page 1183 I have told you the story of the outcome of one single individual who caught the fever by reading *GLEANINGS* about gardening under glass—or, if you choose, "support a family on a quarter of an acre of ground," as we have it in our tomato-book. By the way, in closing let me tell you that before I dictated this article I hunted up the description and directions for cultivating lettuce as given in our book "What to Do, and How to be Happy While Doing it." In that book our friend Eugene Davis, who first sold me that half-pound of lettuce seed, answers questions and tells us all he can about how to grow Grand Rapids lettuce. To Eugene Davis is due the credit of first starting this great industry, while I only gave it its name, Grand Rapids, and scattered it by pinches far and wide to the good people who read *GLEANINGS*. I think that this one article in the book mentioned is abundantly worth the price of it to anybody who is in any way interested in growing lettuce.

OUR FLORIDA GARDEN.

When I first took a look at it, Nov. 17, I felt a good deal discouraged, for my beautiful beds of corn and velvet beans that I left the last of April were a wilderness of great tall weeds, sand-burrs, dried-up cornstalks, and velvet beans. I had been *told* the latter would crowd out everything else, even weeds; but I never before realized what a "pusher" the velvet bean is. Our experiment station advised me to plant corn with beans every third row; but they didn't all come up, altho what did come evidently recognized the opportunity. They don't seem to relish bearing *beans* unless they can climb up on something, so they first mounted the tall corn and then proceeded to load down stalks with great clusters of pods until the corn fell flat on the ground, then they went for the poultry-netting fences, festooned *them* with bunches of pods, but, apparently still unsatisfied, grasped the pine-trees on the other side of the fence, and went up 20 and *even* 30 feet.

I said to Wesley, "Why, Wesley, that vine cannot be velvet beans away up there?"

"Yes, it is, Mr. Root; don't you see the great bunches of green pods stringing along clear away up?"

And I had to admit it. You see the ground was pretty well fertilized for the potatoes, and I also invested in the "nitro culture" when I planted them; and, altho the plants looked sickly and discouraged when I left in April, they must have got "down to business" later.

As we had moved the chickens all away, I told Wesley to plant corn and velvet beans all thru the chicken-yards; and the result was, when I arrived not a gate could be opened, and even the houses were covered. Bunches of beans were hanging from the eaves and everywhere else. You may recall that I put netting overhead in one yard, to keep out hawks. Well, this yard just took their fancy. They roofed it over and dropped bunches of pods down thru the netting. In places in the garden the vines are knee-deep, and the ground under them is so mellow with the decaying black mold it looks as if it must grow potatoes or anything else. How about the corn? Well, Wesley had gathered a heaping barrel; but it was so much trouble to find it when the vines had broken the corn down that I gathered a big armful of beautiful ears after I got here. The summer has been so dry the corn was in perfect condition except that rats or some other animal had shelled part or all of some of the finest ears. In

consequence of the almost unprecedented drouth many of my choice plants and trees have died; but the dry hot weather seems just to suit the velvet bean. Like all legumes, the vines and beans also are fine for feeding stock, and I believe they are used to some extent for human food. We have tried them a little, but do not fancy them much so far.

Another plant that seems to rejoice in dry hot weather is the roselle I have repeatedly spoken of. Our plants were, once more, "great trees," and we are supplying fruit to neighbors far and near. Stewed and sweetened with honey from *our own* hive, I verily believe I enjoy them as much as I did peaches and cream a short time ago in Ohio. If well started in a greenhouse I feel sure they could be made to fruit in the North. We are busy planting potatoes; but there seems to be trouble about getting seed that will sprout promptly. Red Triumph, planted two weeks ago, is not showing yet. Seventy-five cents a peck is the price, and many think they will soon be a *dollar a peck*.

With the large amount of rotting bean-vines, cornstalks, and big weeds Wesley is spading under, there seems a good prospect for potatoes if we have rain enough. We have some very fine sweet potatoes, but *they* bring only a dollar a bushel.

As usual, while eggs are 50 cts. a dozen our 40 full-grown hens are laying very little; but we are trying everything for feed in order to get them started.

Peas, beans, Bantam corn, radishes, and lettuce are up and growing finely that were planted about two weeks ago. Spineless cactus has made a fair growth during the summer in spite of weeds.

FIRST NEW POTATOES FROM FLORIDA.

The Jacksonville *Times-Union* says:

"What is believed will be the first full carload of new fall-crop potatoes to leave Florida this season was shipped from the celery-farm siding north of Crystal Springs, Wednesday," says the *Manatee Record*. "Almost all of the potatoes will grade as number one, fancy, and they are bringing a fancy price. The price paid was \$2.71 per hamper at the car." The *Record* says that these potatoes were planted in September, and will pay the growers handsomely. The wonder is that more potatoes are not planted for the fall crop, as the demand is now greater than even in the early spring. From the planting to digging, the time was seventy days. Great is Florida, and her wonderful climate and soil!

SWEET CLOVER; DOES IT EVER BLOSSOM THE FIRST YEAR?

In my experiments with white sweet clover (*Melilotus alba*) during the years past, I think I have several times seen an

occasional stalk that would blossom the first year. The matter was called to mind by the following:

A field of *Melilotus alba* sown here last spring bloomed profusely when about four feet high. I enclose a sample, and ask the cause if you know of any parallel case. I have never known it to bloom the first year.

Earle, Ark., Sept. 26.

C. W. RIGGS.

To the above, Mr. Calvert replies as follows:

Mr. C. W. Riggs:—I have yours of the 26th, with sample of what you say is *Melilotus alba*. Where seed is sown as early as July or August, it usually makes sufficient growth that year to produce bloom the year following. I do not recall a case where it would bloom the same year if sown in the spring, altho *Melilotus indica*, the annual yellow, does bloom the year sown.

Medina, O., Sept. 29.

J. T. CALVERT.

Later on came the following:

The seed of the plant I sent you, supposed to be *Melilotus alba*, was sown some time last April, so the party who sowed it told me. I was particular to ask if he sowed it the fall before or the spring before last. Both he and his women folks declared that it was sown last spring, grew to about four feet in height, when it bloomed profusely, the field being covered with a nice white bloom. I thought it might be a yellow annual, so I went to see and found the white bloom in various places. The party had cut it several times and pastured it most of the summer—had hogs on it, pastured heavy. You, of course, have seen the plant in its second year, when it has been pastured heavily, struggling to perpetuate itself. This is the condition in which I saw it. The party was not satisfied with it, and said he was going to plow it up and put in alfalfa. I begged him not to do so until I had communicated with you. I never saw or heard of anything like it in my experience with white sweet clover.

Greenland, Ark., Oct. 4.

C. W. RIGGS.

Neither of the letters tells us definitely the date at which the bloom appeared. The first letter is dated, you will notice, Sept. 26. Perhaps the locality, Arkansas, has something to do with it; but if the seed was sown only the last of April, the last of September would give just five months for the plant to grow 4 ft. high and bloom profusely as he states. The question arises right here, is this a special strain of sweet clover because it blossoms so early, or is it because the climate and environment down in Washington Co., Ark., are so particularly favorable? Will the friends who are growing sweet clover, especially those in the South, tell us if they have had any like experience? If they have not, some measures should be taken to secure seed from this particular field, as it would seem to be quite desirable to get a strain of sweet clover that will give a yield of honey the first season.

THE PRICKLY PEAR OF AUSTRALIA—IS IT SUCH A TERRIBLE PEST, AFTER ALL?

When I published the article referred to below, I felt sure it was an extreme state-

ment in regard to the prickly pear, and I rather expected we should get something on the other side. Well, below is a letter from one of our friends in the same locality:

Mr. Root:—I see by the June 15th issue, p. 506, that our friend W. Mertons is troubled about the prickly pear. He says he has 130 acres of land, and it took five years to clear 30 acres. I know plenty of men to clear nearly that much in one year.

If you want to keep the land clear you must plow it and put in a crop. Corn is a good crop, as prickly pear is a plant that requires sun and air; and as for seeds, it would take at least two years before they would be large enough to be noticeable. So you could soon settle them with a good scarifier. He says the land costs from 10 to 50 dollars. It is a long way from that, as you can have the prickly-pear farms by applying for them. The only condition is that you have to clear them; then you get your title rights, and labor is not so high as he says, as there are plenty willing to work for \$5.00 a week and board, and a place to sleep.

I know several farmers saved the lives of their cattle thru the drouth by boiling the pear and mixing it with chaff; and there are hundreds of pigs fattened with boiled prickly pear and corn. A friend of mine took up one of these prickly-pear farms. He took out a lot of pigs and 20 hives of bees. As soon as he cleared a patch he put in a patch of corn, and fattened the pigs with boiled pears and corn also; and he got a large crop of extracted honey from his bees. The honey is so transparent you can see thru the sides of the bottle as easily with the honey in it as you could if it were empty; and it is a good thick liquid. The pears have a large cream-colored flower, and the fruit is bright-red and pear-shaped. It makes a very good jelly, and it is nice to eat like fruit, as it is sweet, and comes in very handy when there is no other about. In fact, there are many children that get hardly any other fruit, as it is too dear to buy. Peaches, early sorts, bring 5 cts. each, and apples 4 cts.; apricots, 2 cts., and plums 2 cts.

As for the pear spreading at the rate of one million acres, it is what we call "putting it on thick," and trying to deter people from coming out here. At the rate the pear is destroyed, fed to stock, and used in various ways, there will not be much left. It is boiled, and the liquid is mixed with lime or whitening, and it makes a good whitewash. You cannot rub it off when dry, and I hear they are making petrol out of it.

A pear is full of very fine thorns on the young leaves; but when boiled they collapse and are harmless. The old stems have large thorns; but when they use them they make a fire on them with grass or small brush, and that is the end of the thorns. The leaves are about 3 by 4 inches on the young plants, and the older about 6 by 8 inches.

On the whole, the prickly pear is a blessing in disguise.

WALTER LINCOLN.

Toowoomba, Queensland, Aus., Aug. 20.

From the above we learn that even the Australian prickly pear has its uses. I am glad to know that it yields honey, and honey almost if not quite water-white and of excellent quality. If I understand it, it is desirable to put in some cultivated crop like corn or potatoes after the prickly pear is turned under. I know by experience that it takes quite a long time for the seeds to germinate, and I can hardly think it is a worse pest than some weeds we have to contend with here in the United States.

HEALTH NOTES

DEAF PEOPLE—WHAT HAS SCIENCE DONE FOR THEM?

Can any one estimate what spectacles have done for the sight? Why, it seems to me I could hardly live without the help of my eye-glasses; and yet I suppose people got along after a fashion before lenses were invented. Well, for years past I have been wondering why something could not be done for the ears (or to a certain extent at least) what science has done for the eyes. Various contrivances claim to do this very thing. On page 868, Dec. 1, 1913, I gave a lengthy account of my experiments with the acousticon, ear-phone, ear-trumpet, artificial ear-drums, etc.; and I concluded by saying that I received more benefit with my bare hand placed back of the ear than with any contrivance I could find advertised or get hold of. Another thing in favor of this method is that you always find your hand "on hand"—always with you; whereas your ear-trumpet or ear-drum might be somewhere else when you want it most. Well, during the three years that are past I have still been answering advertisements and testing all the advertised appliances. A year ago I got some little ear-drums from a company in Detroit. For a time I thought I could hear a little better with the ear-drums; but after careful and repeated experiments I decided they were of no benefit to *me* whatever. I emphasize the word *me* because I have had satisfactory evidence showing that they are a benefit to *some* people. Perhaps I should add, however, that this evidence has always been in print. I have never met and *talked* with any deaf person who felt, after a lengthy trial, that he had received any benefit from artificial drums. Perhaps you may not be aware that the venders of helps for hearing have a list of the names of deaf people. I do not know how they get them; but I am getting circulars continually. Even when in my Florida home as well as here in Medina I get circulars from the Wilson Ear-drum Co., of Louisville, Ky. The price of their ear-drums is \$5.00. I told them I was willing to test their device, but added that, so far as I could learn, if no benefit was received the whole \$5.00 was wasted. They made no reply except to send a lot of testimonials; and a short time ago they sent me quite a little book of testimonials praising in extravagant terms their ear-drums; and they said these testimonials were all of recent date, and that I might write to any one of them, tho they were scattered

all over the United States. Finally I wrote as follows:

Wilson Ear Drum Company:—In reply to yours of a recent date, I enclose \$5.00. That so many people have been benefited is a big showing, of course; but I can find no word anywhere in regard to the number that are not benefited at all. I presume there must be some, and may be a great number of them. Wouldn't it be honest to say, "Quite a few receive no benefit whatever"? It would hurt your trade somewhat, no doubt; but isn't the honest truth worth more than dollars?

I am nearly 77 years old. I have used some ear-drums made in Detroit. I thought at one time they were of a little benefit, but later I could see no difference. If I receive any benefit whatever I will gladly publish it in our journal. If I do not, I will also publish it, because I think it's due the great public to know that *not* everybody is helped. If you don't object, I wish you would tell me about what per cent of your customers fail to receive any benefit whatever. A. I. Root.

The drums came promptly, and with them the following letter:

Mr. A. I. Root:—Your letter with check for \$5.00 has just been received, and in compliance with your request we are sending under separate cover by mail today a complete set of our ear-drums with the hope that you will be greatly benefited by their use. Full instructions for using the drums will be found in the little box; and after reading the same carefully you should have no difficulty in inserting and removing them at will.

Should it be necessary to exchange you will have the privilege of doing so free of charge at any time.

We wish to state that it would be impossible for us to know how many people we have benefited and how many we have not benefited; but we take it for granted people are benefited when they write and order new sets, and some write and state that their only regret is that they did not get the drums many years sooner. We wish to assure you that we will do everything in our power to assist you in getting the best results by making any change necessary.

WILSON EAR DRUM CO.

Louisville, Ky., Sept. 14.

These little rubber drums are certainly in some respects an improvement over the ones I received from Detroit, and I followed directions most carefully with much faith and enthusiasm; but when tested by the ticking of the clock I could perceive no benefit. If anything I could hear a little better *without* the drum.

Let me mention another thing in closing. The directions for using the ear-drums include washing out the wax and accumulations most thoroly with castile soap and water, even using antiseptic cotton to remove all accumulations. If the ear-wax has become so hard that even the soap and water do not get it away, the directions are to apply sweet oil until the hard cakes are softened up, and the ear can be thoroly cleansed. Now, this treatment alone will improve the hearing with most people. A

doctor of my acquaintance has given great relief, especially in one case, by a thoro cleansing of the ear. I do think the ear-drum people should give at least a few testimonials from those who, like myself, have received no benefit from the drums. Perhaps that would not be "business;" may be it would not be the common kind of business. Years ago they used to call me a sort of fanatic who had a habit of mixing religion with business; and I think the ear-drum people and every other business man, for that matter, would be benefited in the

end by being honest enough to say there were also quite a number of people who received *no* benefit. It might, however, occur to some stupid people like myself that in that case they ought to give back the five dollars, or at least a part of it.

Oh, yes! there is one thing more. These little ear-drums that cost \$5.00 it does not seem to me ought to cost over five cents—at least where made in quantities. If weighed on the scales they probably would weigh about as much as a bumble-bee's wing.

TEMPERANCE

"GOD'S KINGDOM COMING" TO OHIO

The temperance forces are much gratified in winning four states for constitutional prohibition: Michigan, Montana, Nebraska, and South Dakota; two states for statutory prohibition: Utah and Florida; the winning of the territory of Alaska, every municipality in it going dry; the overwhelming defeat of wet proposals submitted in the five dry states of Oregon, Washington, Colorado, Arkansas, and Arizona. In view of the foregoing splendid victories it behooves the temperance people of Ohio to begin at once to plan the battle in our own state.

OHIO ANTI-SALOON LEAGUE

Columbus, O., Nov. 14.

ANOTHER BIG DAILY GONE DRY.

We clip the following from the *New Republic*:

The Washington *Evening Star*, one of the leading newspapers of that city, and recognized as one of the great dailies of the country, has put a ban on liquor advertisements. No longer will this great medium carry any sort of advertising which boosts alcoholic beverages.

Announcement to this effect is carried on the first page of the *Star*. It says:

"In deference to the wishes of its readers, the *Star* will not print advertisements of intoxicating liquors hereafter."

ONE HUNDRED MILLION DOLLARS LESS FOR DRINK IN 12 MONTHS.

We clip the following from the *Farm and Fireside*. Read it over carefully and consider; then read it over again.

BOOZE BILL DWINDLING.

Cold figures from an unprejudiced source are what really furnish an authentic verdict as to whether increase of dry territory decreases the consumption of alcoholic drinks. The last government fiscal report, including the first half of 1916, shows that there were 2.7 gallons less of intoxicants per capita consumed than in the preceding year. One hundred million dollars less was paid out for drink in twelve months by the American people than during the previous year.

In the consumption of beer there was a decrease of ten gallons for each family. Even with this reduction, Uncle Sam's records show there was a total expenditure for intoxicants in twelve months of

over a billion and a half dollars—twenty-five dollars for each family.

A comparison of the money going into the building of churches and liquor-making plants is an interesting side light on the question. In 1905, for every dollar expended for new church buildings there were \$2.80 put into new breweries and distilleries. In 1915, for every dollar put into new liquor-making plants there were \$38.20 put into building new churches in this country. There were \$14,000,000 less invested in the construction of breweries and distilleries in the past ten years than in the decade preceding 1905.

It is now evident that John Barleycorn is mortally hit; but he is working his publicity bureau as never before, to show he is still in the game and that when a state goes dry it becomes wetter!

BELGIAN CHILDREN STARVING, AND 12,000 TONS OF BARLEY FURNISHED THE BELGIAN BREWERS.

We clip the following from the *Christian Herald*:

Alcohol well nigh wrecked Germany's forty years of preparedness. In spite of the cry of starving Belgian babes and little children hungry for bread, the Belgian government demands monthly imports of twelve thousand tons of barley for the Belgian Brewers' Federation.

Is it possible that there is no power on earth or up in heaven to give the barley to the starving babies and children instead of using it to manufacture beer?

DOES PROHIBITION PROHIBIT?

The following clipping comes from the *Norfolk Ledger-Dispatch* and reads as follows:

Norfolk is unmistakably dry. King Alcohol and his court which for 306 years have held sway in this city have been completely ousted. The great wave of prohibition which has swept over the Old Dominion (and, indeed, the entire South) is surely in force in this city. For the first time in the memory of the oldest member of the public assembly and of the oldest court attache the docket in the hall of justice was this morning free from an charge of drunk. When the clock struck the fatal thirteen that ushered in the fatal day that banished liquor from as full with great force, and more that time there

has been no liquor sold. Yesterday the few dealers who had stock still on hand shipped it out of the state. The amount shipped was small.

For several weeks (in fact months) past, the police-court docket has been crowded with a long list of drunks who were holding what they termed their final celebration. This morning Clerk Billy Stevens in the Mill of Justice called charge after charge in practically all classes of law violation but drunk. The court which is usually held up by innumerable drunks was free from the pests this morning; and, while the docket was large, the session was snappy and short.

"Guess we are about thru with the drunks," said Justice Arnold at the close of the session. "I never saw so many on the dockets as we have had in the past few weeks."

ONE DRUNK IN RICHMOND.

RICHMOND, Va., Nov. 2.—Business for the police department suffered a tremendous slump yesterday, the records for the day having shown that the number of arrests had fallen off to a mere shadow of former days, and that the effects of prohibition were early discernible in the absence of the usual long list of "drunks" on the police blotter. Up to 1 o'clock this morning only one member of the body politic of Richmond slumbered behind the bars dreaming of his trial this morning before Justice Crutchfield.

"NO MONEY TO RUN THE CITIES."

On page 992, Oct. 15, I gave a list of the cities that were having financial trouble, and also a list of cities that voted dry, not any of them crying "bankruptcy." But it seems the wets are making so much ado about the terrible state of the finances in Denver that the *Kansas City Star* sent a reporter to find out exactly the condition, and below is a brief clipping from his report:

Even the old cry of no money to run the city is given a hard wallop. Auditor Markley reported today that 94 per cent of all 1916 tax moneys are in the treasury, and many delinquent taxes are being paid. September was \$40,000 better than September, 1915, in collections. The city redeemed \$636,500 in improvement bonds and has issued only \$94,800 this year.

POLICE FORCE IS 100 LESS, BUT STILL ABLE TO WORK EFFICIENTLY.

A good friend sends us a copy of the *Toronto Globe* for Oct. 27. He says:

Dear Mr. Root:—The enclosed clipping is self-explanatory. Coming from such an unbiased authority you can have your own ideas as to how prohibition is working in the largest city in the world under such an ordinance. The clipping is from the *Toronto Globe*, the most influential paper published in Canada.

J. L. BYER.

Markham, Ont., Oct. 27.

We have not room for the whole of a marked article in it, but below is the heading:

Prohibition is Doing Big Work.

Chief of Police Grasett Sees Vast Change.

Men Take Money Home.

Police is 100 Less, and Able to Do Work Efficiently—Storekeepers Getting the Money Saved—Decrease in Arrests.

The paper goes on to tell of drunken sots who are now at work and taking their money home to their families instead of spending their time lounging around saloons. Husbands go to market with their wives, and carry home the purchases, etc. I wonder if our large cities here in the United States would not do well to "sit up and take notice." In Cleveland there is a continual plea for more policemen; and the workhouses and city prisons are so overcrowded that they are talking about larger buildings. But not a word is said in any of our dailies in regard to *closing the saloons* instead of building bigger jails and workhouses. When I can find a Cleveland daily that has the courage to reject liquor advertisements, and suggest closing the saloons as a means of getting a revenue, I am going to swing my hat and thank God.

THE WHITE SHOES, WHITE DRESS, AND BLUE SASH.

I went to hear Wm. Sunday yesterday in his talk to the Ypsilanti students, more than a thousand of them, at the Normal, and then we went on to Ann Arbor by motor car. The Coliseum, which is said to seat 13,000, was packed, and we heard as best we could. I had an opportunity to distribute all of the leaflets that I had with me. Henry Ford sent to me a large package. He is giving his life and what he has accumulated to worldwide peace.

I was delighted with your temperance talk in the last issue of GLEANINGS; and I wish to say right here that I have the leaflet "White Shoes, White Dresses, and a Blue Sash" in the original. I have seen the woman and heard her talk. She took an active part in the first convention called by the Crusade women of Ohio in Cincinnati. I do not see why her name was not mentioned in the leaflet. It was Mrs. Abbie Leavitt. Her husband, Rev. S. K. Leavitt, was a Baptist minister in Cincinnati. It really was a true story, and she was gone from her home but about two hours. Truly the Spirit of the Lord was with us in those days; and when his name and power are acknowledged sufficiently we shall see victory over evil. We must depend on him and give him the honor and praise, to whom it is due, before success can crown our efforts.

I do wish many more could have heard Mrs. Leavitt tell of their work in Cincinnati, when 43 of the best women in the city were arrested for blockading the sidewalk, when they knelt in prayer on the pavement in front of a saloon. In reporting it she said something like this:

"You have heard of the man who drew an elephant in a lottery, and did not know what to do with it. The mayor of Cincinnati looked just like that man. The pavement was 18 feet wide, and we occupied about 30 inches. I was leader that day, and gave out the hymn 'Rock of Ages,' when a policeman laid his hand on my shoulder and said, 'Mrs. Leavitt, you are under arrest.' 'All right,' said I, 'Let me hide myself in thee.' Then we prayed for that policeman and for the others, and for the crowd. We tried the patience of that policeman a little, for our service lasted 60 minutes. Some shouted, some cried, but all were happy; and then we arose and walked in an orderly manner, two by two, about two miles to the station house."

RHODA C. W. DERBYSHIRE.

Ypsilanti, Mich., Oct. 24.

Index to Gleanings in Bee Culture

Volume XLIV

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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Write today for a pair of Mated Everbearing Strawberry plants, one large packet each of the new Cereal Feterita, Sudan Grass, and Silk Leaf Poppy seed, all Free for Testing. Send 10 cents for mailing expense, or not, as you please. We offer genuine Progressive Everbearing plants at 60c per dozen; 90c for 50; \$1.75 for 100; \$5.00 for 325, all postpaid. CATALOGUE FREE.

The Gardner Nursery Co., Box 454 Osage, Iowa

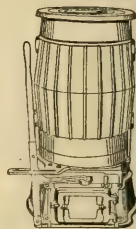
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Heats bath and kitchen boiler too. ONE STOVE AND ONE FIRE YEAR ROUND. There is nothing like it. Send for booklet.

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Furs held separate on request. Rug and robe making a specialty. No commission or express to pay when you ship to

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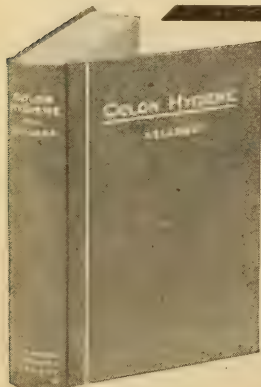
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As Nearly Perfect As You Can Procure

Clover, Alfalfa, Sweet Clover, Timothy and all kinds of grasses and seed grain of highest quality. Samples and special price list free

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Auto-Intoxication

Dangers and Relief

Sent for your FREE examination

A hazy feeling—dullness—half headaches—inability to think—these come from stupefaction, or partial paralysis, of your brain by poisons generated by food waste, fermenting in your colon—the lower part of your digestive tract. This is called "auto-intoxication"—that is, intoxication from poisons generated inside the body. Indigestion and constipation are its symptoms. It may lead to nervous exhaustion, high blood pressure, liver and kidney disorders, and sometimes malignant growths. A clean colon, doing its work thoroughly and well, is easy to have, however. Dr. Kellogg tells you about this in his new book—"Colon Hygiene." It teaches natural methods only—diet, exercise, rest, sleep, and regulation of working hours. No drugs. Following its teaching will give you permanent relief from indigestion, constipation, and their attendant ills. Thus you may regain bodily comfort and have a keen mind, renewed energy, a clear eye, and abiding health. Send the coupon for a FREE examination of this book. Over 400 pages—many illustrations—substantially bound—only \$2. Get this book and rid yourself for all time of the dangers of indigestion, constipation, and auto-intoxication. Examine it FREE first.

Send Only the Coupon—No Money

GOOD HEALTH PUBLISHING COMPANY

1012 Main St., Battle Creek, Mich.

Send me "Colon Hygiene," all charges prepaid. I will return the book or send you \$2 within five days. (Write your name, address, and business or occupation in the margin.)

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Pure honey and beeswax—Porto Rico, Cuban, etc.
D. Steengrafe, 81 New St., New York.

No. 1 white comb, \$2.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case.
H. G. Quirin, Bellevue, O.

FOR SALE.—A limited quantity of choice stock buckwheat and pure clover honey in 60-lb. cans and 5-lb. pails, C. J. Baldrige, Homestead Farm, Kendaia, N. Y.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.
Elmer Hutchinson,
Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold.
D. Steengrafe, 81 New St., New York.

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

WANTED.—Extracted honey, carload or less; send sample.
Hoffman & Hauck, Richmond Hill, N. Y.

WANTED.—Extracted alfalfa honey and wax. Send sample of honey.
A. E. Burdick, Sunnyside, Wash.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED.—Several thousand pounds of clover honey, comb and extracted. Send price and sample.
A. W. Yates, 3 Chapman St., Hartford, Conn.

WANTED.—Extracted clover honey in any quantity; send sample and lowest cash price.
E. B. Rosa, Monroe, Wis.

WANTED.—Amber extracted honey; mail sample and prices f. o. b. Racine.
D. H. Welch, Racine, Wis.

WANTED.—White clover and light-amber extracted honey. Will buy in lots of 1000 lbs. to a carload. Send sample and lowest price.
M. E. Eggers, Eau Claire, Wis.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

FOR SALE

Get our new Rubber Stamp and Label Catalog.
Acme Printing Co., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free.
Eastern Label Co., Clintonville, Ct.

SEND TODAY for sample of latest Honey Labels.
Liberty Pub. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands.
Charles A. Henry, Eden, N. Y.

FOR SALE.—60 hives of bees (8 frames) and 2¼ H. P. gasoline engine and saw.
C. C. Calhoun, White Cliff, Ark.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
White Mfg. Co., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

FOR SALE.—2 sows and 3 boars 2 months old, choice Duroc-Jersey pigs, \$10.00 each, f. o. b. here. Papers furnished.
Marshal Rankin, Brady, Tex.

T supers, extracting-supers, metal-top covers, all new, in flat; Root two-frame extractor. Want Honey.
Goldenrod Apiary, Box 582, Lenox, Iowa. 65066

FOR SALE.—Corn, car lots, also hay and straw, few cars good clover mixed hay, excellent dairy feed. Write or wire for terms and prices.
S. H. Burton, Washington, Indiana.

Good second-hand 60-lb. cans, 2 cans to the case, 30 cts. per case, in lots of 10 cases or less. In lots of 25 cases or more, 25 cts. per case. These prices are f. o. b. Cincinnati. C. H. W. Weber & Co., 2146-2148 Central Ave., Cincinnati, O.

THE ROOT CANADIAN HOUSE.—54-56 Wolseley St., Toronto, Ont. (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLANINGS and all kinds of bee literature. Get the best. Catalog free.

PATENTS

Patents secured or all fees returned. Fortunes made by clients. Patents advertised free. Send data for actual free search. Books free. Credit given.
E. E. Vrooman & Co., 834 F, Wash., D. C.

POULTRY

S. C. Brown Leghorns, good ones. Special cockerel sale. Circular.
H. M. Mover, Boyertown, Pa., Rt. 3.

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry, for pleasure or profit; four months for 10 cents. Poultry Advocate, Dept. 56, Syracuse, N. Y.

WANTS AND EXCHANGES

WANTED.—For spring delivery, 600 colonies of pure Italian bees. Write Lewis H. Furgason, Box 108, Windham, N. Y.

WANTED.—To sell an interest in the bee business to some honest ambitious young man who wishes to go into the business in a large way in as good a locality as there is in New York State. Do not write unless you mean business.
The M. C. Sisbee Co., Rt. 3, Cohocton, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. Shriver, Boise, Idaho.

REAL ESTATE

FOR SALE.—My home in Redlands, Cal. Will include bees if desired.

P. O. Chadwick, Redlands, Cal.

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LaBaume, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.
C. L. Seagraves, Industrial Commissioner A. T. & S. F. Ry., 19th Ry Exchange, Chicago.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

Fine Italian queens and bees. Send for our 1917 calendar, free.
A. E. Crandall & Son, Berlin, Conn.

My choice northern-bred Italian queens are hardy, and will please you. Orders booked now for spring delivery. Free circular. L. L. Barber, Lowville, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5.
Wm. S. Barnett, Barnetts, Va.

FOR SALE.—80 colonies of fine bees at Tularosa, N. M.; good location; good place to live, because owner deceased. Address N. E. DeWitt, care of E. P. & S. W. Ry., Douglas, Ariz.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. The Deroy Taylor Co., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed.
M. Bates, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Sons, Wilcox St., Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. Brockwell, Barnetts, Va.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. The J. E. Marchant Bee and Honey Co., Canton, Ohio.

250 colonies of bees for sale.

G. F. Wilson, 829 Bross St., Longmont, Colo.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. Clemons, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

SITUATIONS WANTED

WANTED.—Position in an apiary in the South, Southwest, or West. Fred E. Osborne, Ahern, Florida.

WANTED.—Position by expert in tropical apiculture. Will go to any part of the world, but prefer an English-speaking country. Address Tropical Apiarist, care Dadant & Sons, Hamilton, Ill.

HELP WANTED

WANTED.—Experienced beeman familiar with Rocky Mountain conditions to handle bees on shares. Can offer good proposition. Write with details of experience, etc. A. H. Dunn, Fort Collins, Colo.

Special Notices by A. I. Root

GOOD BOOKS AT A BARGAIN

Talks on Manures, by Joseph Harris—a \$1.50 book now offered at 75 cts.

The Dollar Hen—a \$1.00 book that had a large sale, which we now offer at 75 cts.

The New Rhubarb Culture—a 50-cent book which we now offer at 35 cts.

Tile Drainage, by W. I. Chamberlain; recently revised and brought up to date; a 50-cent book which we now offer for 40 cts., postpaid.

Practical Cement Work. An elementary treatise on cement construction. The way cement is rapidly taking the place of stone, brick, and lumber, and the way almost everybody is getting to handle it more or less, makes it exceedingly important to have a reliable handbook for the people at large. This book has 110 pages, and the regular price is 50 cts. Instead of 50 cts. you may have it for just 15 cts. as long as the 11 copies last which we still have on hand.

"Letters from an Old Farmer to his Son." This book was put out in 1914, and was advertised to be cludded with GLEANINGS about a year ago. The book (by W. R. Lighnt, author of "Happy Hollow Farm") contains many valuable and praiseworthy suggestions. It is a dollar book; but as we have only eight copies left you may have them for 50 cts. each postpaid.

Tomato Culture—a 40-cent book. This book has also gone thru several editions. The last part of it is by A. I. Root, and is devoted chiefly to the matter of supporting a family on one-fourth of an acre of ground. It is also devoted largely to gardening under glass. The price of the book is 40 cts.; but as we have quite a stock on hand we offer it for 25 cts. postpaid.

Last, but not least, the book "What to Do and How to be Happy While Doing It." See notices of this book under Special Notices in our issue for May 15 last. The book has been sold for years at 65 cts., bound in cloth; paper, 40 cts. We have reduced the price to 25 cts. for the cloth-bound copy and 15 cts. for the paper. For extended notices of the above books, see Special Notices in our issues for May 15, June 1, and June 15, 1916.

TRADE NOTES

In GLEANINGS for Nov. 15 we announced a clubbing arrangement of the book "Gardenette" with GLEANINGS. In that announcement we said that we could offer the paper edition together with GLEANINGS for one year for \$1.40, and that the paper edition alone sold for 60c. We have since received notice from the publishers of the book that the paper edition is out of print and can no longer be supplied. Therefore, it is only the larger and later edition that we can offer clubbed with GLEANINGS. The price is \$1.75 for both.

HIGHER PRICES ON TIN CANS AND PAILS.

The market price of tinsplate today is double what it was a year ago; and the prices quoted as where we have been able to get quotations at all on tin cans and pails are almost double what we were asked a year ago. In this situation we must advance still further the price on tin cans and pails. Till further notice we quote as follows:

Box of 1 5-gallon can, 68c; 10 boxes, \$6.50.
Box of 2 5-gallon cans, \$1.15; 10 boxes, \$11.00.
Box of 10 1-gallon cans, \$2.00; 10 boxes, \$19.00.
Box of 12 1/2-gallon cans, \$2.00; 10 boxes, \$19.00.
Box of 24 1/4-gallon cans, \$3.00; 10 boxes, \$29.00.
Crate of 100 one-gallon cans, \$16.00.
Crate of 100 1/2-gallon cans, \$13.00.
Crate of 100 3/4-gallon cans, \$10.00.
2-lb. friction-top can, crate of 500, \$18.00; case of 24, \$1.15.
2 1/2-lb. friction-top can, crate of 462, \$18.00; case of 24, \$1.20.
3-lb. friction-top can, crate of 420, \$18.50; case of 24, \$1.30.
5-lb. friction-top pail, crate of 200, \$15.00; 50, \$4.00; 12, \$1.10.
10-lb. friction-top pail, crate of 100, \$11.00; 50, \$5.75; 6, 85c.

We will accept a limited amount of orders for shipment from Medina before Jan. 1 for 60-lb. cans, 2 in a case, at 95 cts.; 10 cases, \$9.00.

Manufacturers of tinware are dependent on tinsplate makers for their raw material, and predict still higher prices next year.

CATALOG FOR 1917.

The forms for printing our catalog for 1917 are complete, and we expect to have catalogs ready for mailing early in January. The catalogs in use the past year are about all used up, and many of the prices in them are no longer good because of the numerous changes which we have been obliged to make during the year. If you cannot wait till you receive our new catalog, send us a list of the supplies you want prices on and we will quote you.

From general market conditions now prevailing we anticipate that the prices in the catalog we are now putting out will have to be advanced before many months more radically than the advances which have taken place the past year. Lumber on new contracts is costing ten to fifteen per cent more than former prices, and metal prices are still going up. While we have tried to cover our requirements for the season ahead we have already booked large advance orders; and when we have to begin using higher-priced material we shall be compelled to increase our selling prices to make up for the increased cost. The prudent beekeeper who knows pretty well what he is going to need the coming season will be acting wisely in our judgment by placing his order early while the goods are available, and before further advances occur. In some lines of material it is not so much a question of price as it is being able to get the stuff at all when needed at any price you may be willing to pay. It is very largely the greatly increased demand with a somewhat restricted supply which is keeping prices on the up grade.

LOWER RATES ON COMB HONEY.

We have received a supplement to the Western Classification, effective Jan. 25, 1917, in which we find an item changing the rates on comb honey. In cases without carriers the rate will be double first class. In cases with or without glass fronts pack-

ed two or more cases in boxes or crates, with not less than four inches of cushioning material underneath, and marked on top "Fragile, this side up," the rate will be first class. This is the result of concerted effort on the part of beekeepers and others interested with the Western Classification Committee. Now for the benefit of southern beekeepers as well as the trade we ask for a similar campaign with the Southern Classification Committee, which holds a meeting in Baltimore in February. Write to the Chairman, W. R. Rowe, 816 Grant Building, Atlanta, Ga., presenting your arguments for more equitable classification of comb honey, asking especially for a lower class on comb honey packed in carriers, as provided for in both the official and Western classification. In our experience in shipping millions of pounds there is practically no loss when protected by carriers properly made and packed.

HOTBED SASH.

The season is here again when hotbed sash are needed for growing plants under glass during the cold winter months. We are offering our choice quality cypress sash shipped K. D. at the same price as formerly; but the price of glass is higher. The sash as regularly furnished are 3 ft. 4 in. wide, 6 ft. long, for four rows of 8-in. glass slid into grooves in the bars with ends butted together. We also furnish them with bars rabbeted, when so specified, at the same price:

One sash, K. D., \$1.00.
Five sash, K. D., \$4.75.
Ten sash, K. D., \$9.00.
Glass 8 x 10 for same, \$4.00 per box of 90 lights; five boxes at \$3.80.

We are prepared to make special sash to order, including those with double tier of glass. Prices quoted on application, naming style and quantity required.

SECOND-HAND FOUNDATION-MILLS.

We have for sale the following list of second-hand foundation machines which will serve a good purpose for those who want to make up their own foundation. We can submit a sample from any mill in the list to any one interested, on application.

No. 0153, 2 1/2 x 6 hexagonal thin-super mill in very good condition. Price \$14.00.
No. 0156, 2 1/2 x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.
No. 0165 2 1/2 x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.
No. 0183, 2 1/2 x 6 hexagonal thin-super mill in very good condition. Price \$14.00.
No. 0230, 2 1/2 x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.
No. 0234, 2 1/2 x 6 extra thin-super mill in very good condition. Price \$12.00.
No. 0237, 2 1/2 x 6 thin-super mill in fair condition. Price \$10.00.
No. 0238, 2 1/2 x 6 thin-super mill in fair condition. Price \$10.00.
No. 0239, 2 1/2 x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.
No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.
No. 0247, 2 1/2 x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

SUNDAY SCHOOL TIMES.

This is, without doubt, one of the most helpful and interesting family religious weekly papers published. No change in price is announced for the new year. It is particularly helpful in Sunday-school matters. The regular price is \$1.50 a year. In clubs of five or more, \$1.00. We shall be sending in our Medina club this month; and if any of our readers not having the opportunity of joining a club in their own Sunday-school or town want to join our club they may do so on the following conditions: The subscription should be sent during the month of December—the earlier in the month the better. Send one dollar along with your renewal to GLEANINGS at one dollar, or two dollars for both. If you send after December, your subscription will be for only part of a year, ending with our club in December, or you will have to pay \$1.50, the regular price for a full year.

A B C AND X Y Z OF BEE CULTURE.

Work on the new edition of this book has been interrupted by one thing and another to such an extent that we see little hope of completing first copies till some time in February. In the meantime the old edition is entirely exhausted. We have secured and made available on orders every copy of the old edition on hand here and at our branches and agencies, so far as we have been able to locate them. If any of our readers have or know of any new or uninjured books available we should be glad to hear from them, stating the number of copies, the date of the edition, and the price at which they will be furnished.

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Gleanings in Bee Culture

Medina, Ohio

HOW TO KEEP TRACK OF YOUR SUBSCRIPTION.

The date on the address label shows the time to which your subscription is paid; Jan. 17 means that your subscription is paid to January, 1917. Renew within the month before the expiration of your subscription to avoid missing any copies. It takes a month to change date on label, or to put a new name on our mailing list after we receive the subscription.

"The world hated them because they are not of the world, even as I am not of the world."

I have been experimenting with a few bees here the past summer, making four good colonies out of one. I am taking GLEANINGS, and like it very much; but, most of all, I enjoy "Our Homes." I am glad you are situated to do so much toward bringing in the kingdom. There is a crying need for men of your type just now, or, I should say, Christians of your type—the "not afraid of public opinion" sort. What we need at present is not more battleships and soldiers, but more saints. The average Christian today is too much hand in hand with the world. We need to get back to the place where every Christian, as such, was at war with the world. May you be given strength and wisdom from the never failing source to carry on the work.

Pittsburg, Sept. 29.

ANNA H. DAWSON.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the Outlook. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth, \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

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